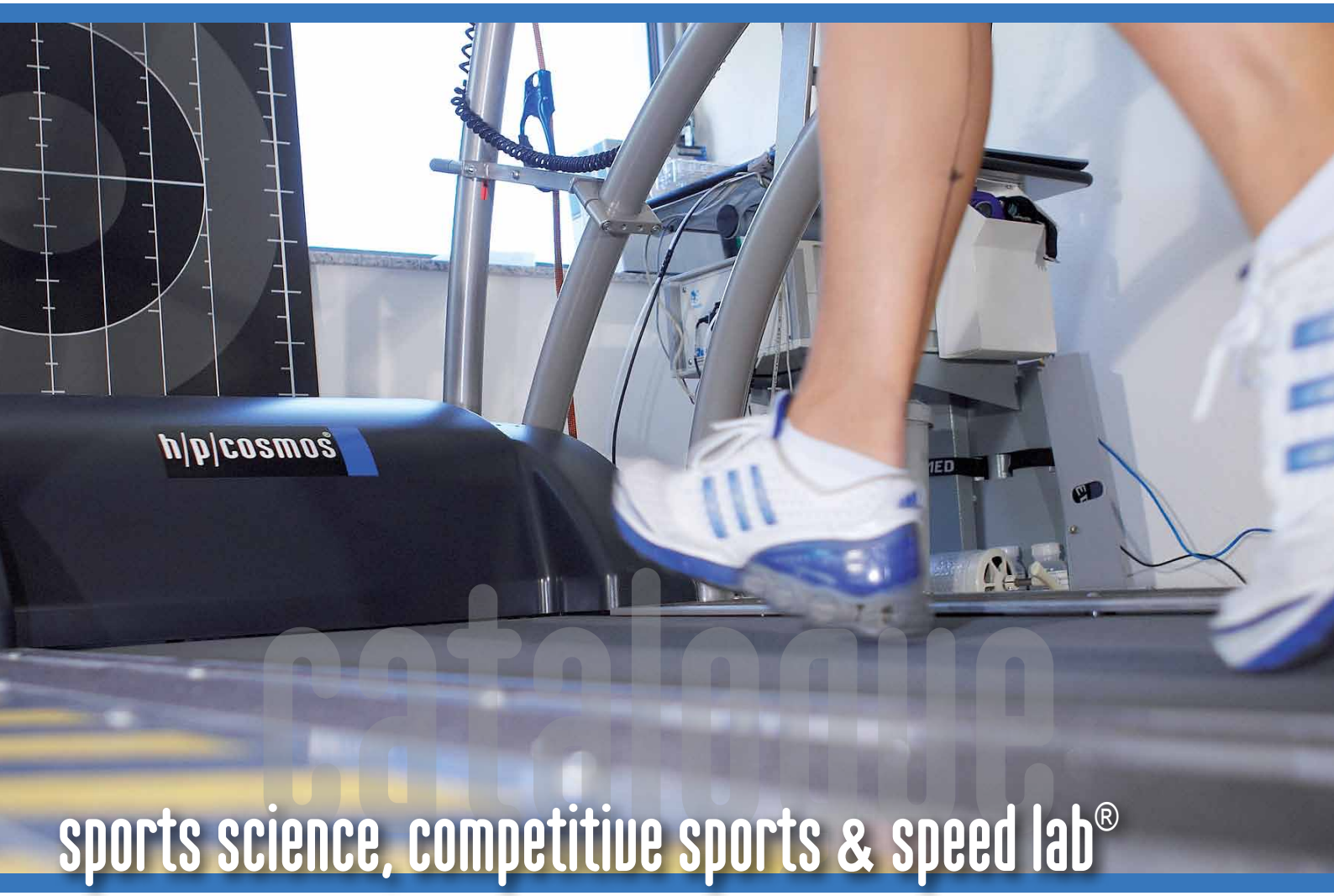
h/p/cosmos®



sports science, competitive sports & speed lab®

run ahead of time!®

[cos101284-en]

Franz Harrer
CEO and President
Co-Founder in the year 1988
h/p/cosmos sports & medical gmbh

Dear valued customer,

It gives me great pleasure and honour to present the new h/p/cosmos® system solutions catalogue.

Through the goals, visions and wishes of our many customers and users worldwide I have been and am inspired, motivated and enthused. I have met many people, subjects, sportsmen, athletes, scientists, trainers, doctors, patients and users who work to reach their limits with tremendous engagement and enthusiasm.

It makes me very proud to help these people achieve their goals.

The pleasure in the face of an athlete who through years of sometimes painful training and performance tests at last reaches his goal is a wonderful reward for all those involved. To see the tears of pleasure in the eyes of someone who learns to walk again after an accident or illness is a unique and very touching experience.

... True emotions of immeasurable satisfaction.

Reflecting on the results of my 24 years work as President and owner of h/p/cosmos I can't see a better way to support people to reach their goals. I am delighted to have found my professional goal. When we look back at the success of the company we can be proud that we have lived up to our company motto "run ahead of time".

Let me take this opportunity to thank you, our customers, users, distributors, partners and friends. I am pleased to share the same values as you: engagement, trust, loyalty and positive openness within our community.

My particular thanks also to all of our employees, suppliers and cooperation partners who have continually supported our mission with professionalism and enthusiasm. Finally thank you to my family and friends for their understanding, support and motivation.

Thank you that you are taking the time to read our current catalogue. It contains the results of years of work and experience in the research, development, manufacturing, service and use of our systems. New methods and a wide range of exclusive system solutions help our customers, athletes, patients and many other individuals to achieve their goals.

We are determined to make a better future for us all through our anti corruption policy and strict guidelines which we implement nationally and internationally with distributors and customers. For more information please visit: www.h-p-cosmos.com/en/company/index.htm

Saddle up ... save the World.

This has been our guiding principle for many years representing the solid basis of our conviction and motivation.

We don't complain about politics …. we make it. We are all individuals and all politicians. So we don't wait until others "do it".

SOS KINDERDORF INTERNATIONAL

This also applies to our social commitment. We support "SOS Children's Villages International" every year with a proportion of our profits and seek to find others who will also lend their support. Communal projects influence many and can have incredible results.

We look forward to an interesting and exciting dialogue with you.

With cosmic regards

Franz Harrer

satisfaction is not enough ...
... we want your enthusiasm!

Since its establishment in 1988, h/p/cosmos® has had a lot of influence in sports, rehabilitation and science through the development and distribution of new products, software, system solutions and application methodologies.

During this time the Traunstein based company has developed into THE German specialists in manufacturing treadmill ergometers and systems for fitness, sport, athletics, biomechanics, medicine, rehabilitation, therapy and scientific research.

Many developments and pioneering work from h/p/cosmos® have influenced not only product design and functionality but also their usage.

Wireless heart rate measurement within the treadmill with load dependent speed and elevation, maintenance free and powerful drive systems with 3 phase motors and reverse belt rotation for downhill training, the patented arm supports with additional keyboard and the robowalk® expander are just some examples of the pioneering achievements of h/p/cosmos®.

A milestone for intelligent solutions was set by h/p/cosmos® in August 1992.

With the “h/p/cosmos® coscom” protocol the stage was set and now many other manufacturers currently use this standard. Since then all h/p/cosmos® running machines and OEM treadmills from h/p/cosmos® can communicate with other equipment such as ECGs, VO2max ergospirometry equipment, stress test systems, metabolic carts, motion analysis software, lactate diagnostic programs and PCs. The coscom® protocol and the coscom.dll together with an impressive list of coscom compatible manufacturers and equipment are available for free download from: www.coscom.org

Additionally the “science port” and the pending patent for ergometric data “Vital Parameter-ID” are part of our innovative performance. In a straight forward system the vital parameters (i.e. heart rate, ergometric data, lactate values, etc.), the important product information, for example product type, serial number, software version and also the local temperature, humidity and other parameters are recorded and assigned. This can lead to an improvement of the data validity and traceability of the measured values. Currently this development is still in the early stages, but it will not take long before there will be very exciting results and findings. The benefit for the user is always in the foreground.

h/p/cosmos® has been working as a treadmill expert and industrial partner and additionally has been active on the standards committee for many years. This has lead to a positive input from h/p/cosmos® to the “treadmill norm” EN 957-6 and supporting safety for the user.

nature, technology and science in fusion®

Why do users choose h/p/cosmos® systems:

1. The right solution

h/p/cosmos® has the worldwide biggest portfolio by far of standard treadmill systems with options, supplies and also custom made solutions for fitness, sports, athletics, bio-mechanics, medicine, therapy and science. In this catalogue there are just a few examples presented.

For customers and users it means that they have always made the right choice in choosing h/p/cosmos® as their supplier even when the requirements of the machinery and system change at a later stage or an additional application is added.

With more than 100 standard treadmill models and an enormous program of options, supplies and configuration possibilities we are sure that we have the best solution for at least 99% of all customer applications. Many of our customers have several h/p/cosmos® machines with differing running areas, functions, speeds, handrail designs, safety equipment etc. for which they value the identical user terminal, coscom interface, software, visualisation & analysis and the reliable service from one source.

2. Flexible and future-safe

Many of the valuable options and supplies are unique and can also be retrofitted. With the possibility to extend the usage the initial investment and future usage can be easily planned.

3. Safety for high performance

The design and ergonomics of the safety arch with chest belt and fall prevention system motivate athletes and trainers and lead to unexpectedly high performance levels.

4. Running comfort

h/p/cosmos® first class running comfort through the studded rubber profile of the running belt.The shock absorption properties can be adjusted to customer requirements (also retro-fit) e.g. research projects, studies, special projects.

5. Transparent data access

h/p/cosmos® systems are open for all. Users can access nearly all of the raw data and parameters or even the formulas used for the calculations. An optional “science port” with raw speed data excluding the “smoothing algorithms” is available (also as retro-fit) for many models. Many parameters and measurements can be exported in standard format and used in spreadsheet programs.

6. Optimal compatibility through open interfaces

The very modern, very powerful and extremely safely built coscom® v3 interface protocol and the coscom.dll library together with the coscom® controls are excellent features that make system integration and compatibilities both transparent and quickly implemented. Descriptions, implementation assistance and the coscom.dll are available free of charge from: www.coscom.org, are therefore very well spread worldwide and have become very popular. Today almost all major ECG devices and cardiopulmonary exercise testing systems are compatible with all medical h/p/cosmos running machines through the coscom® protocol. Many other software manufacturers for motion analysis, biomechanics applications, lactate and performance diagnostics, fitness diagnostics, entertainment and other applications also make use of the coscom® interface.

7. Automatic control

On-line self-diagnostics with error code displays of disturbances to heart rate monitoring, speed indicator, elevation angle, motor management, power supply stability and a number of other functions provide a high degree of reliability and support in monitoring, maintenance or repair. According to the customer‘s wishes remote access, remote diagnostics, remote maintenance and / or training is possible.

8. First class support

h/p/cosmos® offers customers superior support in the planning stage (e.g. when installed in a pit) and later during the installation, training and application use. Talk about your application and possible results expert to expert.

The performance, precision and accuracy of the devices can be found in this catalogue and on our website together with many other good reasons to choose an h/p/cosmos system.

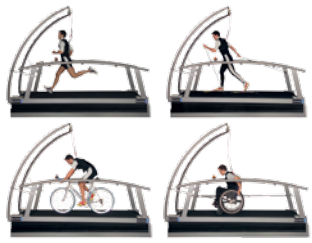
facebook YouTube twitter

P.S. : Motivating results, videos, and application solutions can be found on our website, YouTube, Twitter and Facebook.

page 6

performance diagnostics running

page 20

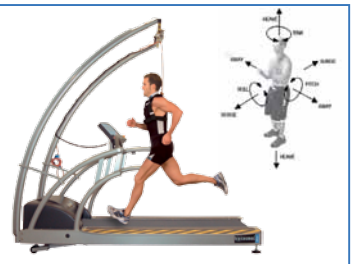


performance diagnostics running, bike, wheelchair & ski

page 34

gait- and motion analysis

page 46

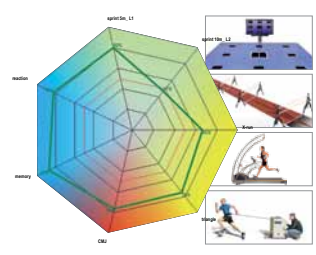


speed-, agility- and functional training

page 54

sprint training / over-frequency training

page 60



speedlab® methodology and running school®

External stress – internal demands

All types of sport-specific applications, individual fitness assessments and exercise physiology testing are based on the same basic principle: there is a defined stress stimulus (external load) to which the individual response (internal demand) is measured.

A precise statement about the performance and individual development requires a measurable, repeatable and accurate variable load.

For more than 24 years h/p/cosmos® has been developing solutions including system solutions for sports medicine and high-performance sports, providing measurable, repeatable and variable load stimuli for walking, running, cycling, wheelchair sport, cross country skiing, inline skating and other sports.

In all solutions the safety of the athlete, his motivation, the ergonomics and the data validity are paramount.

Safety is not only the prevention of injuries from a fall. In many cases athletes, coaches and scientists want to determine the performance limits and can usually only do so when a fall prevention (fall-stop) system allows training to the 100% limit.

No responsible athlete, performance assessor or trainer would risk a dangerous fall, so training loads are usually broken off below the possible maximum for safety reasons. A fall stop system is also a part of the data collection system allowing data at maximum load to be measured. An athlete must have the assurance of not being injured from a fall. Only then he will have the incentive to „perform beyond himself." The same is also true in the treatment of neurological patients and similar applications.

The ergonomics of the systems plays an equally important role in the data validity as the precision and reliability of the overall system. The connection of a treadmill to measuring interfaces such as a stress test system is today a basic requirement. The new standards such as IEC / EN 62304:2006 (medical device software and the software life cycle processes) and EN ISO 14971:2009 (risk analysis and risk management for medical devices) have to be complied with.

The h/p/cosmos medical treadmills also comply with the standard IEC 60601-1:2005 (3rd Edition, Medical Electrical Equipment Part 1: General requirements for basic safety and essential performance) and the relevant standards for EMC (electromagnetic compatibility). Many users know the good EMI shielding values and appreciate this for example in EMG applications.

More recently, specific solutions to achieve functional training, as well as sprint and speed training have become increasingly important.

A new concept is the SpeedLab® methodology package for performance, powered by The Running School®. Most people have not been taught how to run; they assume it's something that comes naturally. But running is a skill and just like any other skill it can be learned. Although it seems the most natural thing in the world to do, many people don't know how to run efficiently to achieve their goal or challenge without getting injured. The Running School® training methodology teaches running technique and speed technique as a skill and movement re-education after injury or surgery.

Some elite results: Professional Ironman Triathlete 70.3 - five times champion - bettered her personal best in the half marathon six times after training at the Running School® from 1 Hour:32 to 1:23. Olympic and world championship sprinter in 400M improved personal best by 0.4 second in 8 weeks at the Running School® in London.

One of the keys to success lies in specialisation. By focusing on the diverse applications for running machines, training and testing solutions, h/p/cosmos® has set standards of innovation, technology, ergonomy, performance, safety and support. Let us show you in this catalogue how our solutions can help to optimise your athletic management.

In this edition of the catalogue or also on our website you will find documentation, system solutions and videos for applications such as biomechanics, force measurement on treadmills, functional training, firefighter diagnostics and training and many other fields. Ask also for our catalogue cos100926-01en "therapy and rehabilitation" or download the PDF from our website www.h-p-cosmos.com.

performance

targeted performance development

details & videos

diagnostics

performance diagnostics

performance diagnostics

- safety for the subject through a long running surface and safety arch with fall stop
- safe usage through simple operation and numerous control options
- secure documentation through automation and the coscom® interface protocol
- validity of the data through a powerful drive, system self-diagnostics and tremendous accuracy

performance

measure. analyse. improve

- **safe on the treadmill – even when you fall?**
- **motivated to train to the limit – but how?**
- **perfect control and documentation – with just one person?**

without worries and with motivation to the limit

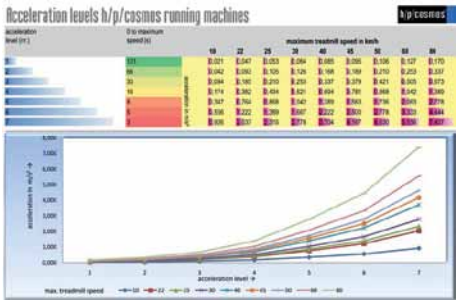
A formula 1 driver can only go to his limits when he knows that his car and the track are as safe as it can be. Without a safety cockpit, a special seat belt and helmet, he would hardly get the same performance or be able to push himself to his limits. It is similar in performance diagnostics: an athlete who feels insecure and afraid of falling will not find it so easy to go to his limits. To get the complete picture from both the diagnosis and training, the maximum physical exertion is often a prerequisite for an accurate test result, respectively for a predictable increase in performance.

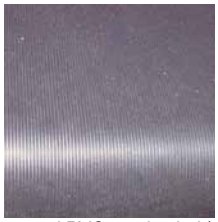
The h/p/cosmos® safety arch with chest belt prevents falling in case of tripping and by loss of coordination in the exhaustion phase. The fall-stop stops the treadmill immediately and automatically by use of a quick-stop system. With this feeling of safety it is possible to train right up to the limit which is important for precise diagnostics.

because performance counts

Although diagnostic performance of marathon runners or triathletes only place moderate demands on a treadmill system due to the very economical running style the diagnosis of athletes from many other sports requires clearly increased performance. Also when sprint and speed tests are conducted with large and heavy athletes the treadmill system must provide, in these short-term peak loads, accurate repeatable results. Single phase power supplies with only 230 volts are often overwhelmed.

For that reason h/p/cosmos® offers three differing system solutions.





normal PVC running belt*

special studded rubber running belt profile 5 mm**

basic performance diagnostics

The h/p/cosmos quasar® med with a speed of up to 25 km/h (15.53 mph optional 30 or 40 km/h), 28 % elevation (15.64° gradient) and a running deck of 170 x 65 cm (66.93 x 25.59“) covers many requirements of the classical endurance diagnostic performance analysis with step and elevation protocols. As an alternative, if purely for fitness or for patient diagnosis, there is the smaller entry-level h/p/cosmos mercury® med with a running deck of 150 x 50 cm (59.05 x 19.68“) available. A single phase voltage power supply 230 V / 16 A is needed by both models. The natural performance limitations apply for single phase voltage power supply and therefore these models are not recommended for high performance applications.

professional performance diagnostics

The h/p/cosmos pulsar® 3p features above all a 3-phase power connection with 3 x 400 volts AC in addition to the larger running surface of 190 x 65 cm (74.8 x 25.59“) and the built-in reverse belt rotation for downhill training. Diagnostics for heavier athletes and many special applications are therefore possible. As part of sprint and speed tests speeds of up to 40 km/h (standard, optional 45 km/h ~ 28 mph) are possible. Here it is all about the speed stability and not just the speed of the belt.

scientific performance diagnostics

The h/p/cosmos venus® 200/75 offers a running surface of 200 x 75 cm (78.80 x 29.53“) and elevation angles of -35 ... +35% (-19 ... +19°) and speeds up to 40 km/h as standard (optional 60 km/h) even more power, precision and capabilities. The drive motor with 11 kW and the heavy rollers provide exceptional dynamics, precision and smoothness. The accuracy of the speed is on average 0.1483% (average deviation of 0.0441 km/h, measured both with no load and under load with runners of 78 and 94 kg). It is especially suitable for scientific study and applications in athletic training and research. Alternatively there are even bigger treadmills, the h/p/cosmos saturn®, with running surface sizes of 250/75 cm up to 450/300 cm and custom models for specific applications.

* used at model mercury® or many other standard treadmills

** used at model quasar® med and pulsar® 3p, with reinforced surface

best possible compatibility with up to 4 communication ports

Especially in sports medicine, biomechanics, research and in professional sports there are often many different systems and devices that are connected to the treadmill: ECG, spirometry, blood pressure monitor, EMG, an external printer, h/p/cosmos para graphics® software for control, visualisation and documentation, h/p/cosmos para analysis® for lactate diagnostics and possibly other software solutions for motion analysis and biofeedback. h/p/cosmos para graphics® and h/p/cosmos para analysis® can serve the user as important tools to assist controlling, recording and documentation, although they are not medical software products according to EN 62304 and do not provide clinical data or treatment recommendations.

For that reason all h/p/cosmos® treadmills provide for up to 4 optional PC-interfaces with different transmission speeds (e.g. 9600 or 115,200 bps) for high demands.

We achieve the best possible compatibility with the proven and reliable coscom® interface protocol, which is now supported by almost all major ergometry systems, ECG's, ergospirometry equipment and numerous software solutions. A „science-port" is also optionally available to provide the raw data from the speed sensor as a digital signal without averaging („smoothing algorithm"). These signal taps are even possible for other parameters opening the path for other scientific applications both now and in the future.

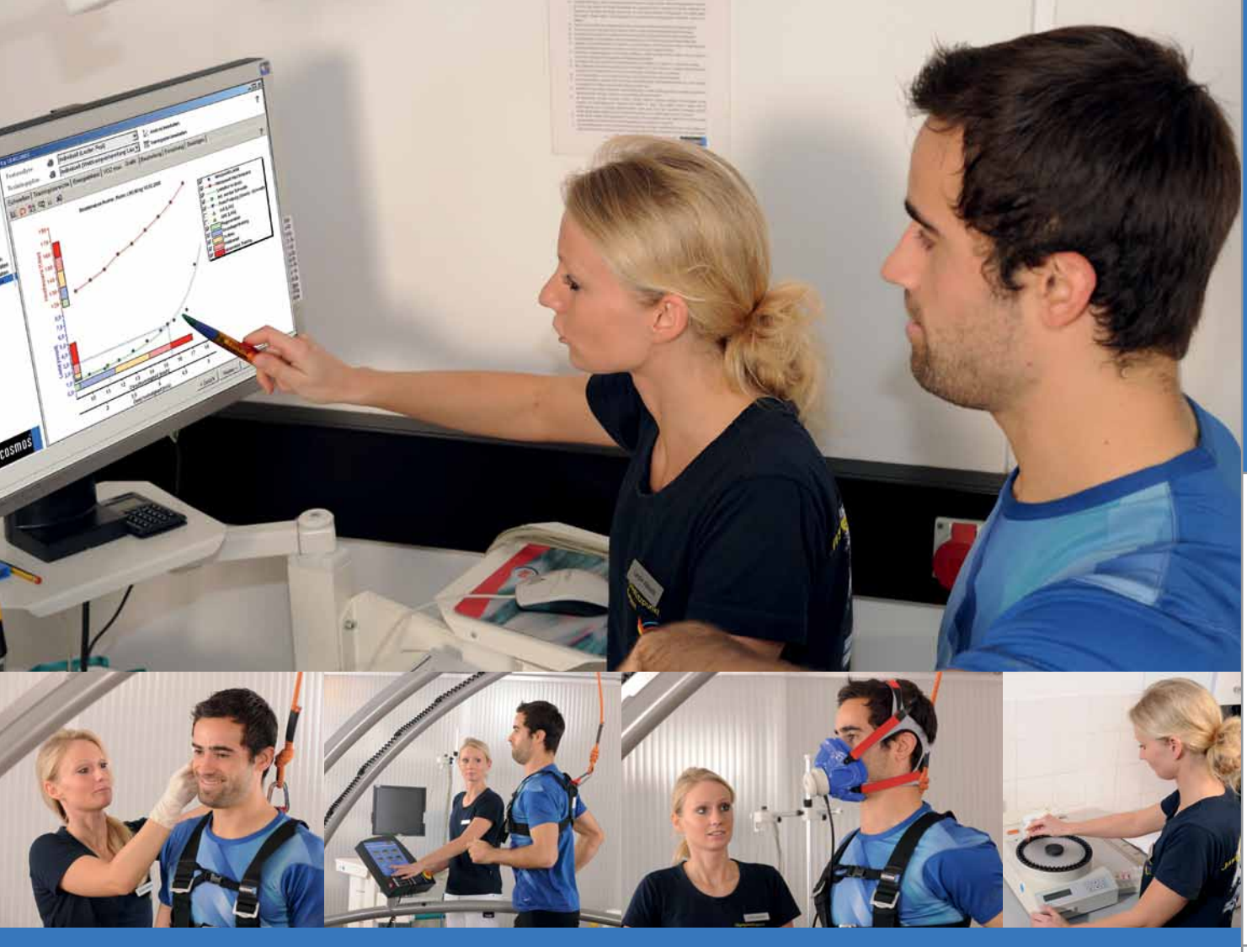
standards aren't always applicable – lots need more

Football, rugby, American football, basketball, handball, tennis, boxing, decathlon, biathlon, marathon, hurdles, sprinting, triathlon, cross country skiing - are sports where specific system solutions are mostly required. Team sports athletes are often large, heavy, and some have very specific requirements. Many train in intervals with high velocities and accelerations - and corresponding step length.

Standard 230 volt power supplies and standard treadmills (smaller 1-phase 230 V h/p/cosmos devices) do not have sufficient power under heavy loads and there may be major speed drops during the athletes landing phase. Often special running belts are required on which the tips from metal poles and running spikes are „tolerated".

h/p/cosmos® running surfaces are available in various lengths, widths and combinations. Both for the acceleration of the treadmill speed and deceleration all h/p/cosmos® treadmill ergometers are equipped with several intensity levels. The individually selectable acceleration and deceleration levels range from extremely slow to extremely fast. In 3 ... 131 seconds from 0 to maximum speed. Depending on the speed and combination, acceleration values from 0.021 to 7.407 m/s² (as a digital value directly programmable) or custom designs are possible.

This allows the programming of professional true life tests and sport specific training to simulate specific situations. On the other hand a normal fitness treadmill only lets you run fitness applications.



safety – whilst taking blood samples and measuring blood pressure

In many cases taking a blood sample from the ear or blood pressure measurement on the upper arm are both part of a performance test. This requires the treadmill to come to a stop quickly so the blood can be sampled quickly, easily and safely.

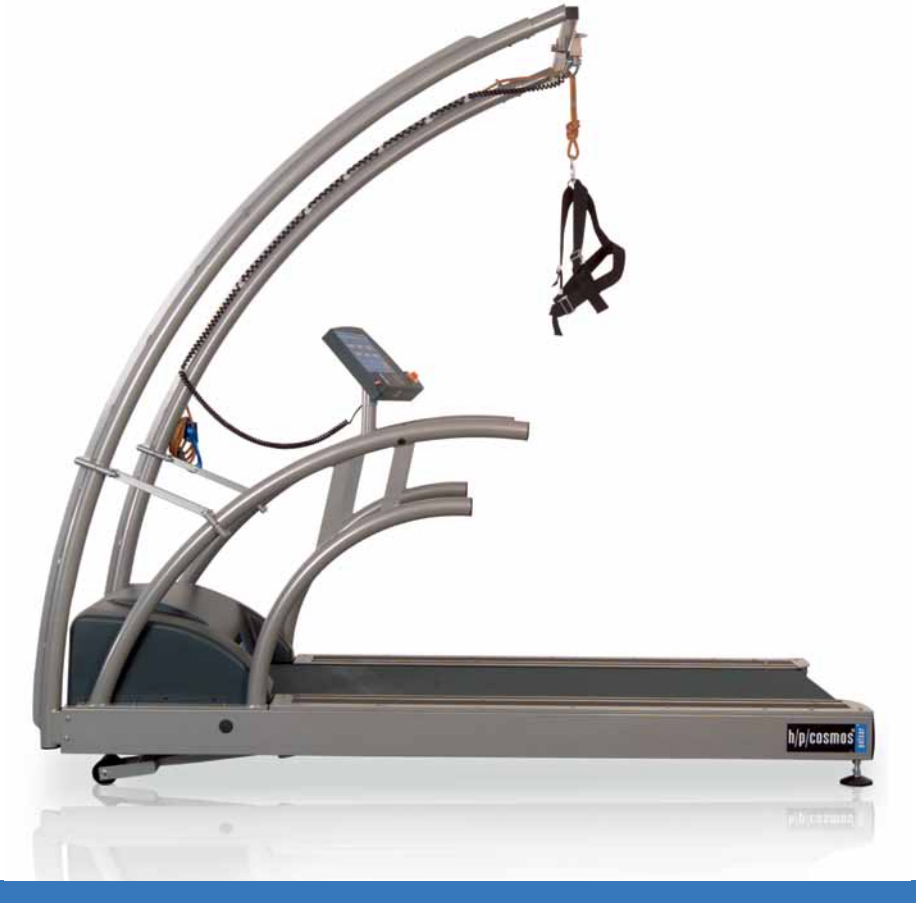
Also here different acceleration levels and programmable pause times are valuable features allowing optimum concentration to blood sampling or blood pressure measurement. The h/p/cosmos pulsar® 3p model provides acceleration and deceleration from 0.085 m/sec² (very slow) to 4.167 m/sec² (very fast; for optional 45 km/h model). For patients and insecure users the speed can be changed very slowly. For professionals and athletes it can be set to 3 seconds from 0 to 45 km/h if required. h/p/cosmos systems have both a visual and audible countdown so that both the subject and MTA (medical technical assistant) are warned in time for the next acceleration or change. Additionally there is a wide footboard with a non-slip surface for optimum stability and control for both subjects and supervising personnel.

if no compromise with your running shoe ... why then compromise on the running surface and the machine?

Athletes are very demanding in the selection of their running shoes. You should also be so in the choice of running belt and the running machine. Depending on requirements and the application h/p/cosmos® offers not only smooth but grooved or notched profiles. Our running belts are not excluded from the 3 year full warranty and are often seen running after 8 to 15 years. h/p/cosmos® treadmill systems are often in use for very long periods, for many of our customers that's already 20 years. Requirements, needs and goals may change and expand over time.

The h/p/cosmos® system for performance analysis provides a variety of expansion options: for example almost all systems can be extended for motion analysis or functional coordination and running technique training with unweighting and/or used with the robowalk® expander system.

h/p/cosmos® also offers the corresponding solutions for rehabilitation, functional training or speed training and agility training/flexibility training. And thanks to the built in PC interface and the open coscom® v3 protocol they can be used with the widest variety of compatible software solutions.



recommended configuration **performance diagnostics professional** h/p/cosmos pulsar® 3p

pos.	qty.	order number	product description
1.	1	cos30004va04	**running machine h/p/cosmos pulsar® 3p** running surface 190 x 65 cm, speed 0 ... 40 km/h, elevation -25 ... +25 %, drive motor 4.3 kW with high-performance 3-phase power supply, 2 interface ports com1/ com2 for PC-, ECG, ergospirometry-, blood pressure monitor system or printer - compatible to many systems worldwide, incl. PC software h/p/cosmos para graphics® for device control and visualisation
2.	1	cos101277	„science port“ speed output with raw speed data excluding the “smoothing algorithms”
3.	1	cos10170	safety arch with harness, fall stop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
4.	1	cos14903-03-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105 ... 135 cm) for safety arch harness
5.	1	cos14903-03-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch harness
6.	1	cos14903-03-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch harness
7.	1	cos10670-01	spare rope for safety arch
8.	1	cos14825-01	h/p/cosmos sirius® lactate test meter measurement within 10 seconds, storage of 250 values, interface for the PC (optional)
9.	1	cos14827-01	h/p/cosmos sirius lactate test strips, box with 72 test strips
10.	1	cos11657	start set consumables „lactate“ - incl. latex gloves, size M, box with 100 pieces [cos11351], kidney dish, plastic [cos11355], disinfectant spray, 250 ml [cos11352], disposable lancets, sterile, box 200 pieces [cos11652], plaster, box 420 pieces [cos11356], swabs, 1000 pieces [cos11353], MEDI-box (lancets collector) [cos11930]
11.	1	cos100668v4pro	software h/p/cosmos para analysis® „professional“ evaluation software for performance diagnostic and training control
12.	1	cos14970	h/p/cosmos satellite PC med - medical PC mini-tower according to IEC 60601-1, Windows® OS incl. 19“ LCD Monitor, keyboard, mouse, DVD-ROM writer, FireWireCard, colour laser printer and PC-trolley
13.	2	cos10223	potential equalisation cable 5 meters / 16ft 4.85“ (necessary in medical used rooms and patient environment)
14.	2	cos00097010035	interface cable RS 232, 10 m (32 ft 9.70“)
15.	2	cos12769-01	interface adapter / converter USB / RS 232
16.	1	cos16487	3rd interface RS 232 com3 with coscom v3, baudrate 115.200 bps
17.	3	cos60098010004	pre installation and configuration of satellite PC incl. software solutions at h/p/cosmos factory
18.	1	cos10177	packing on pallet + cardboard hood, treadmill partially assembled, running surface 190 x 65 cm (safety arch)
19.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
20.	1	cos10194	installation, commissioning and instruction through authorised and trained personnel
21.	1	cos14316	1 full day workshop treadmill applications in performance testing and training
			system price h/p/cosmos solution for performance diagnostics pro: please ask your dealer for a quotation

specifications h/p/cosmos pulsar® 3p

running machine:	h/p/cosmos pulsar® 3p
order number:	cos30004va04
applications:	running for sports, sports medicine, cardiology, rehabilitation, stress tests & medicine WITH UserTerminal (display & keyboard), MCU5. stand alone or remote control via interface.
running surface:	L: 190 cm (74.80“) W: 65 cm (25.59“) access height: 23 cm (9.06“) - shock load reduction for the joints - belt surface with non slip material - max. permissible load: 200 kg (440 lbs)
speed range:	0...40.0 km/h (0...11.1 m/s) (0...24.8 mph) special speed up to 45 km/h (27.9 mph) on request.
acceleration:	7 levels (3...131 sec. from 0 to max. speed) from 0.085... 3.704 m/sec² programmable via para control; also for deceleration (for manual or program mode)
elevation:	-25...+25 % (-14...+14.0°) adjustable electr., resolution 0.1 % (-25 %...+25 % when using reverse belt rotation)
running direction:	switch for reversing running belt direction, running belt must be adjusted for reverse belt rotation. max. permissible speed without a safety-harness with fall-stop prevention system is 5 km/h.
motor system:	4.3 kW (5.8 HP) 3-phase A.C. motor (maintenance free and brushless, 20 years warranty on main drive motor)
power transmission:	frequency inverter, poly-V-belt, very quiet operation
safety: CE 0123	CE0123; directive 93/42/EEC + 2007/47/EC; MDD; machinery directive 2006/42/EC; EN 60601-1; EN 60601-1-1; EN 60601-1-2 (EMC approved); EN 60601-1-4; EN 60601-1-6; EN 62304; EN 957-1; EN 957-6; EN ISO 14971, ISO 9001; EN ISO 13485; emergency-off switch (mains off), potential equalisation bolt, transformer for potential-isolation from the mains
degree of protection:	class I ⏚ / type B 🧍 / IP 20
classification:	active diagnostic device and active therapeutic device, medical device risk class IIb (MDD) / S, I, A (EN 957)
leakage current:	0.25 mA
ambient condition:	+10...+40 °C (-30...+50 °C on request) 30...70 % humidity (up to 100 % on request) 700...1060 hPa barometric pressure 3000 m (~10000 ft) max. altitude without pressurisation
data (resolutions):	6 LCD displays, 4 LEDs for operation modes, 20 LEDs for display of units & profile no, steps, etc. speed (0.1 km/h or m/sec or m/min or mph), time (00:00) in hours, minutes & seconds, elevation (0.1% or degrees) distance (1 meter...999.9 km or miles), METS (1 MET) program step/number, energy (1 kJ/kcal), fitness index (1) power (1 Watt), heart rate (1 bpm / beat per minute)
heart rate monitoring:	POLAR WIND WearLink® wireless system, coded transmission range 10 m (32.81 ft) approx. ECG-accurate measurement; automatic control of speed and elevation according to programmed target heart rate („cardio mode“)
digital interface:	2 x RS 232 com1/com2 with 115200/9600 bps: incl.PC-protocol, h/p/cosmos coscom® & printer protocol for serial printer, option at extra charge: USB - RS 232 converter com3 with baudrate 115.200 bps
programs:	42 programs / profiles - 6 exercise profiles (scalable, 756 variations) - 28 test profiles (UKK 2 km Walktest, Bruce, Graded Test, Naughton, Ellestad, Gardner, Ramp, Conconi etc.) - 8 free definable programs with 40 program steps
free PC software:	h/p/cosmos para control® for display & remote control, h/p/cosmos para graphics® for recording & visualisation, inclusive 2 x RS 232 interface cable 1 x 5 m (16 ft 4.85“), 1 x 10 m (32 ft 9.70“)
software (at extra charge):	h/p/cosmos para analysis® & h/p/cosmos para motion®. PC software for monitoring, recording & motion analysis.
free accessories:	user manual, 2 bottle holders and 10 h/p/cosmos 0.5 l drinking bottles, service box incl. special oil, 5 m (16 ft 4.85“) potential equalisation cable
colour of frame:	grey aluminium RAL 9007 (powder coated); other colours on request.
handrails:	steel tube handrails 60 mm (2.36“) diameter on both sides, front-handrail crossbar (removable) 36 mm (1.42“) diameter, optional other handrail designs at extra charge.
voltage supply:	400 Volt AC 3~/N/PE 50/60 Hz 15A fuse breaker, dedicated line, special voltage supply available on request.
size of frame:	L: 250 cm (98.42“) B: 105 cm (41.34“) H: 145 cm (57.08“)
net weight:	approx. 440 kg (968 lbs)
gross weight:	approx. 590...640 kg (1298...1408 lbs)

Optionally available at extra charge: Special frame colours, other handrail designs, special specifications, special voltage supply, special deck sizes and accessories.Weight and package specifications can deviate according to options, accessories and packing.

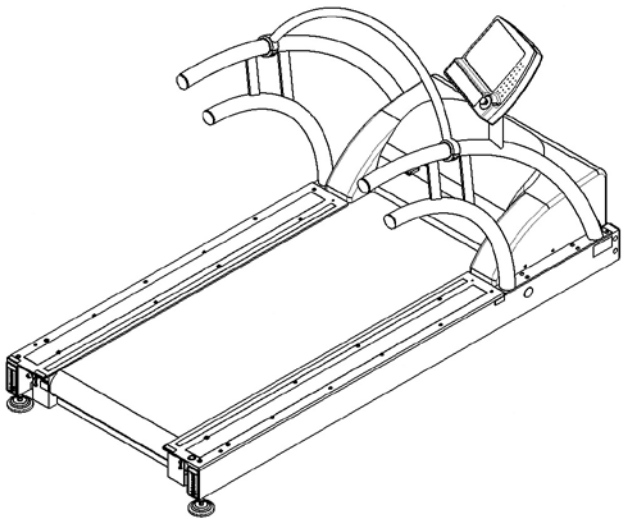
E&OE. Subject to alterations without prior notice.

Performance limitations:
Please consider the natural and physical performance limitations of the single phase 230 volt voltage power supply. The single phase 230 volt voltage power supply is sufficient up to normal fitness performance diagnostics, but is not sufficient for all special high performance applications (uphill/downhill, speed running, controlled jump-ons, sidesteps, heavy subjects at higher speed etc.). 3-phase running machine models
with 3x400 volts power supply (for example model pulsar 3p, venus or saturn) are recommended for high performance applications.

Warning!
Installation, commissioning, instruction and maintenance only to be conducted by h/p/cosmos trained and authorised personnel. For running surfaces with L:200 x W:75cm or bigger, special applications, at higher speeds, for subjects with higher risk of falling, where a fall would lead to unacceptable risks (e.g. invasive probes during exercise or recent hip replacement), or if there is not enough safety space behind the treadmill, a fall prevention system (e.g. safety arch with harness & chest belt) is obligatory.

Keep min. safety space of L: 2 m (78.74“) x W: 1 m (39.37“) or the width of the treadmill (if the treadmill is wider) behind treadmills!

No children on or near to treadmills.



recommended configuration **performance diagnostics basic** h/p/cosmos quasar® med

pos.	qty.	order number	product description
1.	1	cos30003va20	**running machine h/p/cosmos quasar® med** running surface 170 x 65 cm, speed range 0 ... 25 km/h, elevation 0 ... 28 %, com1 interface, para control® software
2.	1	cos10170	safety arch with harness, fall stop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
3.	1	cos14903-03-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105 ... 135 cm) for safety arch harness
4.	1	cos14903-03-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch harness
5.	1	cos14903-03-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch harness
6.	1	cos10670-01	spare rope for safety arch
7.	1	cos14825-01	h/p/cosmos sirius® lactate test meter measurement within 15 seconds, storage of 250 values, interface for the PC (optional)
8.	1	cos14827-01	h/p/cosmos sirius® lactate test strips, box with 72 test strips
9.	1	cos11657	startset consumables „lactate“ - incl. latex gloves, size M, box with 100 pieces [cos11351], kidney dish, plastic [cos11355], disinfectant spray, 250 ml [cos11352], disposable lancets, sterile, box 200 pieces [cos11652], plaster, box 420 pieces [cos11356], swabs, 1000 pieces [cos11353], MEDI-box (lancets collector) [cos11930]
10.	1	cos100668v4pro	software h/p/cosmos para analysis® „professional“ evaluation software for performance diagnostics and training control
11.	1	cos14970	h/p/cosmos satellite PC med - medical PC mini-tower according to IEC 60601-1, Windows® OS incl. 19“ LCD Monitor, keyboard, mouse, DVD-ROM writer, FireWireCard, colour laser printer and PC-trolley
12.	2	cos10223	potential equalisation cable 5 meters / 16ft 4.85“ (necessary in medical used rooms and patient environment)
13.	2	cos00097010035	interface cable RS 232, 10 m (32 ft 9.70“)
14.	1	cos00098010025	2nd interface RS 232 com2 with coscom v3
15.	1	cos16487	3rd interface RS 232 com3 with coscom v3, baudrate 115.200 bps
16.	3	cos60098010004	pre installation and configuration of satellite PC incl. software solutions at h/p/cosmos factory
17.	1	cos10177	packing on pallet + cardboard hood, treadmill partially assembled, running surface 170 x 65 cm (safety arch)
18.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
19.	1	cos10194	installation, commissioning and instruction through authorised and trained personnel
20.	1	cos14316	1 full day workshop treadmill applications in performance testing and training
			total price net, excluding VAT, excluding custom duties
			VAT (19 % in Germany, other VAT and/or custom duties may apply in other countries)
			system price h/p/cosmos solution for performance diagnostics basic: please ask your dealer for a quotation

specifications h/p/cosmos quasar® med

running machine:	h/p/cosmos quasar® med
order number:	cos30003va20
applications:	running for sports, sports medicine, cardiology, rehabilitation, stress tests & medicine WITH UserTerminal (6 displays & keyboard), MCU5. stand alone and/or remote control via interface.
running surface:	L: 170 cm (66.93“) W: 65 cm (25.59“) access height: 23 cm (9.06“) - shock load reduction for the joints - reinforced running belt with profiled surface, 5 mm thick - max. permissible load: 200 kg (440 lbs)
speed range:	0...25.0 km/h (0...6.9 m/s) (0...15.5 mph) special speed up to 45 km/h (27.96 mph) on request
acceleration:	7 levels (3...131 sec. from 0 to max. speed) from 0.047... 2.037 m/sec² programmable via para control also for deceleration (for manual or program mode)
elevation:	0...28 % (0...15.6°) adjustable electr., resolution 0.1 % up to -28 % when using optional reverse belt rotation
running direction:	switch for reversing running belt direction (option, extra charge); running belt must be adjusted for reverse belt rotation. max. permissible reverse speed 5 km/h (3.1 mph) if no safety-harness with fall-stop prevention system is used.
motor system:	3.3 kW (4.5 HP) 3-phase A.C. motor (maintenance free and brushless; 20 years warranty on main drive motor)
power transmission:	frequency inverter, poly-V-belt, very quiet operation
safety: CE 0123	CE0123; directive 93/42/EEC + 2007/47/EC; MDD; machinery directive 2006/42/EC; EN 60601-1; EN 60601-1-1; EN 60601-1-2 (EMC approved); EN 60601-1-4; EN 60601-1-6; EN 62304; EN 957-1; EN 957-6; EN ISO 14971, ISO 9001; EN ISO 13485; emergency-off switch (mains off), potential equalisation bolt, transformer for potential-isolation from the mains
degree of protection:	class I / type B / IP 20
classification:	active diagnostic device and active therapeutic device, medical device risk class IIb (MDD) / S, I, A (EN 957)
leakage current:	0.2 mA
ambient condition:	+10...+40 °C (-30...+50 °C on request) 30...70 % humidity (up to 100 % on request) 700...1060 hPa barometric pressure 3000 m (~10000 ft) max. altitude without pressurisation
display (resolutions):	6 LCD displays, 4 LEDs for operation modes, 20 LEDs for display of units & profile no, steps, etc. speed (0.1 km/h or m/sec or m/min or mph), time (00:00) in hours, minutes & seconds, elevation (0.1% or degrees) distance (1 meter...999.9 km or miles), METS (1 MET) program step/number, energy (1 kJ/kcal), fitness index (1) power (1 Watt), heart rate (1 bpm / beat per minute)
heart rate monitoring:	POLAR wireless, 1 channel receiver ECG-accurate measurement and display beat-to-beat; automatic control of speed and elevation according to programmed target heart rate („cardio mode“)
digital interface:	1 x RS 232 com1 with 9600bps: incl. PC-protocol, h/p/cosmos coscom® & printer protocol serial. option extra charge: USB-RS 232-converter; com2; com3 with 115.200bps; com4.
programs:	42 programs / profiles - 6 exercise profiles (scalable, 756 variations) - 28 test profiles (UKK 2 km Walktest, Bruce, Graded Test, Naughton, Ellestad, Gardner, Ramp, Conconi etc.) - 8 free definable programs with 40 program steps
free PC software:	h/p/cosmos para control® for display & remote control inclusive 1 x RS 232 interface cable 5 m (16 ft 4.85“).
software (at extra charge):	h/p/cosmos para graphics®, para analysis® & para motion®. PC software for monitoring, recording & motion analysis.
accessory (free of charge):	user manual, bottle holder with 2 h/p/cosmos 0.5 l bottles, service box incl. special oil, 5 m (16 ft 4.85“) potential equalisation cable
colour of frame:	grey aluminium RAL 9007 (powder coated)
handrails:	both sides: steel tubes Ø 60mm (2.36“) covering 1/3 track length front: cross bar Ø 36mm (1.42“) with mounting clamps
voltage supply:	230 Volt AC 1~/N/PE 50/60 Hz 16A fuse, dedicated line
size of frame:	L: 230 cm (90.54“) W: 105 cm (41.34“) H: 145 cm (57.08“)
net weight:	approx. 380 kg (836 lbs)
gross weight:	approx. 530...580 kg (1166...1276 lbs)

Optionally available at extra charge: Special frame colours, other handrail designs, special specifications, special voltage supply, special deck sizes and accessories. Weight and package specifications can deviate according to options, accessories and packing.

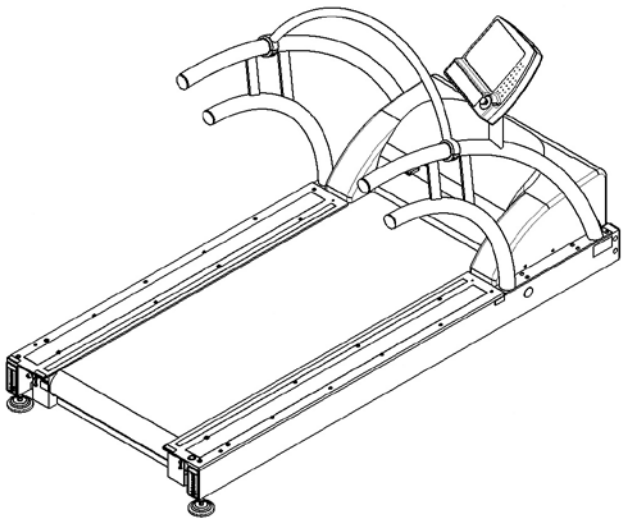
E&OE. Subject to alterations without prior notice.

Performance limitations:
Please consider the natural and physical performance limitations of the single phase 230 volt voltage power supply. The single phase 230 volt voltage power supply is sufficient up to normal fitness performance diagnostics, but is not sufficient for all special high performance applications (uphill/downhill, speed running, controlled jump-ons, sidesteps, heavy subjects at higher speed etc.). 3-phase running machine models
with 3x400 volts power supply (for example model pulsar 3p, venus or saturn) are recommended for high performance applications.

Warning!
Installation, commissioning, instruction and maintenance only to be conducted by h/p/cosmos trained and authorised personnel. For running surfaces with L:200 x W:75cm or bigger, special applications, at higher speeds, for subjects with higher risk of falling, where a fall would lead to unacceptable risks (e.g. invasive probes during exercise or recent hip replacement), or if there is not enough safety space behind the treadmill, a fall prevention system (e.g. safety arch with harness & chest belt) is obligatory.

Keep min. safety space of L: 2 m (78.74“) x W: 1 m (39.37“) or the width of the treadmill (if the treadmill is wider) behind treadmills!

No children on or near to treadmills.



recommended configuration **performance diagnostics science** h/p/cosmos venus®

pos.	qty.	order number	product description
1.	1	cos30005-01va05	**running machine h/p/cosmos venus® 200/75** running surface 200 x 75 cm, speed 0 ... 40 km/h, elevation -35 ... +35 %, drive motor 11 kW with high-performance 3-phase power supply, 2 interface ports com1/ com2 for PC-, ECG, ergospirometry-, blood pressure monitor system or printer - compatible to many systems worldwide, incl. PC software h/p/cosmos para graphics® for device control and visualisation
2.	1	cos101277	„science port“ speed output with raw speed data excluding the “smoothing algorithms”
3.	1	cos100923	variable elevation speed (switch for changing the velocity of elevation amendment from slower to faster)
4.	1	cos14190	handrails 2/3 detachable long / short / rolled - for perfect sagittal view during video analysis
5.	1	cos10170	safety arch with harness, fall stop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
6.	1	cos14903-03-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105 ... 135 cm) for safety arch harness
7.	1	cos14903-03-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch harness
8.	1	cos14903-03-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch harness
9.	1	cos10670-01	spare rope for safety arch
10.	1	cos14825-01	h/p/cosmos sirius® lactate test meter measurement within 10 seconds, storage of 250 values, interface for the PC (optional)
11.	1	cos14827-01	h/p/cosmos sirius® lactate test strips, box with 72 test strips
12.	1	cos11657	startset consumables „lactate“ - incl. latex gloves, kidney dish, disinfectant spray, disposable lancets, MEDI-box, etc.
13.	1	cos100668v4pro	software h/p/cosmos para analysis® „professional“ evaluation software for performance diagnostics and training control
14.	1	cos14970	h/p/cosmos satellite PC med - medical PC mini-tower according to IEC 60601-1, Windows® OS incl. 19“ LCD Monitor, keyboard, mouse, DVD-ROM writer, FireWireCard, colour laser printer and PC-trolley
15.	2	cos10223	potential equalisation cable 5 meters / 16ft 4.85“ (necessary in medical used rooms and patient environment)
16.	1	cos00097010035	interface cable RS 232, 10 m (32 ft 9.70“)
17.	2	cos12769-01	interface adapter / converter USB / RS 232
18.	3	cos60098010004	pre installation and configuration of satellite PC incl. software solutions at h/p/cosmos factory
19.	1	cos14091	packing in wooden crate, treadmill partially assembled, running surface 200 x 75 cm (safety arch)
20.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
21.	1	cos10194	installation, commissioning and instruction through authorised and trained personnel
22.	1	cos14316	1 full day workshop treadmill applications in performance testing and training
			system price h/p/cosmos solution for performance diagnostics science: please ask your dealer for a quotation

specifications h/p/cosmos venus® 200/75

running machine:	h/p/cosmos venus® 200/75
order number:	cos30005-01va05
applications:	running for sports, sports medicine, science, cardiology, rehabilitation, stress tests & medicine WITH UserTerminal (TouchPanel display), MCU5. stand alone and/or remote control via interface.
running surface:	L: 200 cm (78.74“) W: 75 cm (29.53“) access height: 48 cm (18.9“) - shock load reduction for the joints - manual lubrication with syringe, automatic distance notice - max. permissible load: 280 kg (616 lbs)
speed range:	0...40.0 km/h (0...11.1 m/s) (0...24.6 mph) special speed up to 50 km/h (31.1 mph) optional at extra charge.
acceleration:	7 levels (3...131 sec. from 0 to max. speed) from 0.085... 3.704 m/sec² programmable via para control; also for deceleration (for manual or program mode)
elevation:	-35...+35 % (-19.0...+19.0°) adjustable electr., resol. 0.1 % (up to -35 % when using reverse belt rotation)
running direction:	switch for reversing running belt direction (standard) running belt must be adjusted for reverse belt rotation
motor system:	11 kW (15 HP) 3-phase A.C. motor (maintenance free and brushless; 20 years warranty on main drive motor)
power transmission:	frequency inverter, timing belt, quiet operation
safety: CE 0123	CE0123; directive 93/42/EEC + 2007/47/EC; MDD; machinery directive 2006/42/EC; EN 60601-1; EN 60601-1-1; EN 60601-1-2 (EMC approved); EN 60601-1-4; EN 60601-1-6; EN 62304; EN 957-1; EN 957-6; EN ISO 14971, ISO 9001; EN ISO 13485; emergency-off switch (mains off), potential equalisation bolt, transformer for potential-isolation from the mains, light barriers & STOP function at belt re-entry zones
degree of protection:	class I ⏚ / type B 🧍 / IP 20
classification:	active diagnostic device and active therapeutic device, medical device risk class IIb (MDD) / S, I, A (EN 957)
leakage current:	0.25 mA
ambient condition:	+10...+40 °C (-30...+50 °C on request) 30...70 % humidity (up to 100 % on request) 700...1060 hPa barometric pressure 3000 m (~10000 ft) max. altitude without pressurisation
touchpanel display:	operation mode, units & profile no, steps, etc. speed (0.1 km/h or m/sec or m/min or mph), time (00:00) in hours, minutes & seconds, elevation (0.1 % or degrees) distance (1 meter...999.9 km or miles), METS (1 MET) program step/number, energy (1 kJ/kcal), fitness index (1) power (1 Watt), heart rate (1 bpm / beat per minute); self diagnosis and on-line observation of speed & elevation
heart rate monitoring:	POLAR WIND WearLink® wireless system, coded transmission range 10 m (32.81 ft) approx. ECG-accurate measurement and automatic control of speed and elevation according to programmed target heart rate („cardio mode“)
digital interface:	2 x RS 232 com1/com2 with 115200/9600 bps: incl.PC-protocol, h/p/cosmos coscom® & printer protocol for serial printer, option at extra charge: USB - RS 232 converter
programs:	42 programs / profiles - 6 exercise profiles (scalable, 756 variations) - 28 test profiles (UKK 2 km Walktest, Bruce, Graded Test, Naughton, Ellestad, Gardner, Ramp, Conconi etc.) - 8 free definable programs with 40 program steps
free PC software:	h/p/cosmos para control® for display & remote control, h/p/cosmos para graphics® for recording & visualisation, inclusive 2 x RS 232 interface cable 1 x 5 m (16 ft 4.85“), 1 x 10 m (32 ft 9.70“)
software: (extra charge)	h/p/cosmos para analysis®; h/p/cosmos para motion® PC software for diagnostics, analysis and exercise planning.
free accessories:	user manual, 2 bottle holders and 10 h/p/cosmos 0.5 l drinking bottles, service box incl. special oil, 3 x 5 m (16 ft 4.85“) potential equalisation cable 5 m (16ft 4.85“)
colour of frame:	grey aluminium RAL 9007 (powder coated)
handrails:	both sides: steel tubes Ø 60 mm (2.36“) covering full track length; front: detachable cross bar Ø 36 mm (1.42“) with mounting clamps
voltage supply:	400 Volt AC 3~/N/PE 50/60 Hz 32A fuse, dedicated line
size of frame:	L: 240 cm (94.49“) W: 115 cm (45.28“) H: 138 cm (54.33“)
control unit external:	depth: 48 cm (18.90“) W: 80 cm (31.50“) H: 106 cm (41.73“)
net weight:	approx. 740 kg (1630 lbs)
gross weight:	approx. 990...1190 kg (2180...2620 lbs)

Optionally available at extra charge: Special frame colours, other handrail designs, special specifications, special voltage supply, special deck sizes and accessories. Weight and package specifications can deviate according to options, accessories and packing.

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with 3x400 volts power supply (for example model pulsar 3p, venus or saturn) are recommended for high performance applications.

Warning!
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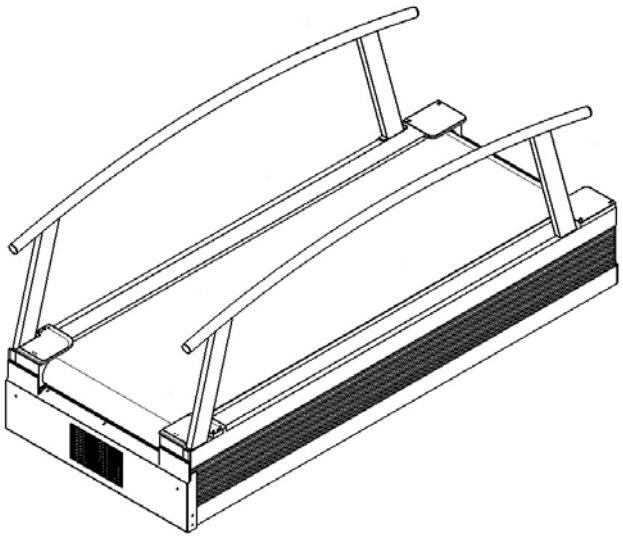


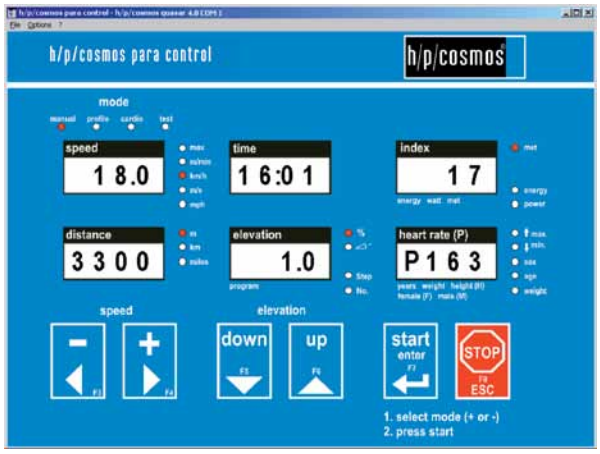
h/p/cosmos sirius®

The h/p/cosmos sirius® is a measuring device for fast and easy determination of the lactate concentration in the blood. The simple operation and high accuracy mean that it is well suited for use in the field and laboratory:

The very short measurement time of just 10 seconds allows for immediate feedback both during a test and in a training session.

The short measuring time to determine if a sufficient lactate value has been reached, means that the test can be immediately ended without the need to over exert the subject. The simple operation and menu navigation with the scroll wheel supports the user's concentration during the diagnostic performance of the athletes. Via an optional interface the values with date and time stamps in the software can be imported into h/p/cosmos para® analysis. To support reliably under different climatic conditions the h/p/cosmos sirius® is equipped with a temperature sensor. The serial measurement mode allows the implementation of time step test together with functions such as stopwatch and countdown. That makes the h/p/cosmos sirius® a handy sports computer.

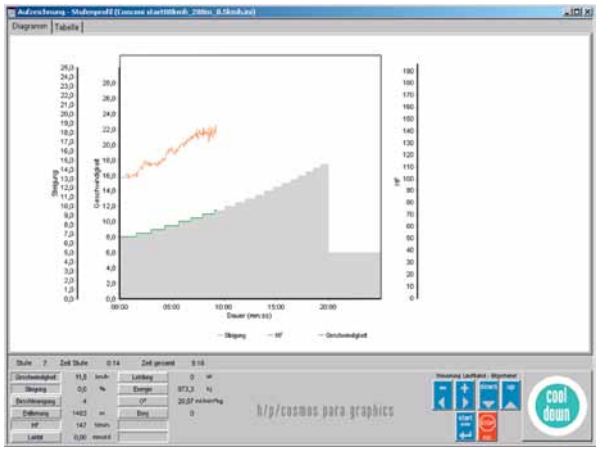
measuring method:	enzymatic-amperometric
displayed results:	in 10 seconds
required quantity of blood:	0.5 µl capillary blood
fill stop signal:	automatic
memory:	250 measurements
accuracy:	3 ... 8 %, depending on concentration
temperature range:	+ 5° ... 45° Celsius
measurement range:	0.5 ... 25.0 mmol/l
humidity:	max. 85 %
display:	LC-Display with icons
dimensions of device:	91 x 55 x 24 mm
dimension of packaging:	205 x 145 x 80 mm
net weight:	80 g
gross weight:	386 g
battery powered:	2 x 1.5 Volt AAA/LR03



h/p/cosmos para control®

h/p/cosmos para control® is a software solution that allows the user to control the treadmill from a computer. To make h/p/cosmos para control® as user-friendly as possible the input screen has been designed to be the same as the treadmill user terminal. Functions include direct switching of the running mode or units of measurement with just one mouse click, target parameter input for speed, acceleration and elevation, profile and program options. This means everybody can easily control the basic functions over h/p/cosmos para control®.

Furthermore h/p/cosmos para control® offers the user many additional functions such as cool down, quick stop, count down and a complete configuration tool for the option settings. All customers receive the software free of charge with the purchase of an h/p/cosmos® treadmill.

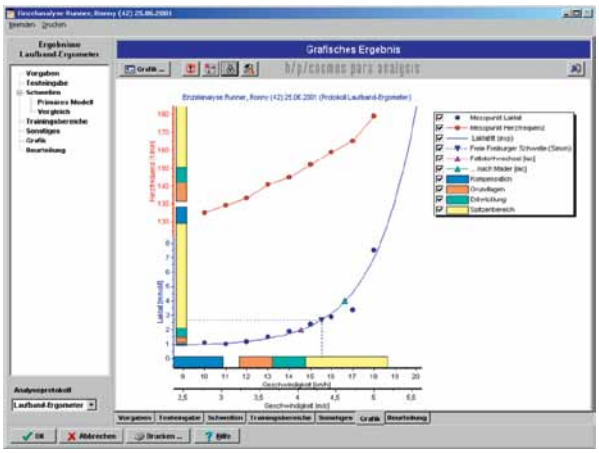


h/p/cosmos para graphics®

Displaying and recording – the h/p/cosmos para graphics® software allows you simply and flexible control the treadmill, for example manually, via ramp profiles, graded tests, interval programs, heart rate target values, etc. The target values and recorded values are on-line visualised. It also allows comparison through overlay function with parameters from previous tests or training sessions.

Furthermore many important parameters (speed, elevation, time, distance, and pulse) are permanently recorded either graphically or in a spreadsheet as required.

Additional parameters such as lactate or BORG values for subjective feeling of exertion etc. and comments can be manually input even on-line during the test. A data export (.csv) allows many of the parameters to be analysed further in a spreadsheet. The software solution is ideal for both controlling the treadmill and managing the documentation for each training and exercise physiology fitness testing session.



The above software programmes are not medical products according to EN 62304 and do not provide clinical data or therapeutic recommendation, however they are a valuable tool to assist in control, recording and documentation.

h/p/cosmos para analysis®

The software h/p/cosmos para analysis® professional is the ideal software for a professional and optimal test analysis and training management. The speed and heart rate parameters recorded by the h/p/cosmos para graphics® software on-line on the h/p/cosmos treadmill can be simply imported into para analysis®. The load profile and lactate values can also be manually input so that the software can also be used for field tests without the need for a treadmill. h/p/cosmos para analysis isn't just for runners but also for cyclists and swimmers for example. Up to 13 threshold calculation models for anaerobic threshold, lactate and heart rate calculation, fitness assessment and training zones are included. Features include detailed info when moving thresholds, comparison of data when selecting various threshold models, PDF and report generator with comments and many more. Also included is a trainings planner with calendar and marathon time prediction. A data bank allows long term, cross and comparative analysis.

These important features are necessary in the sports and fitness areas for a valuable and high performance software. The h/p/cosmos para analysis® It ("light version") for ambitious home users also includes the documenting and evaluation of the UKK 2 km walk test.

cycling wheelc

sport-specific testing and optimisation

cycling
details & videos

wheelchair sport
details & videos

inline skating
details & videos

running, cycling, wheelchair & skiing

- **safety for the subject – through a safety arch with fall stop and wheelchair stabiliser**
- **safety during use – through simple inputs and numerous control possibilities**
- **secure documentation – through the coscom port and automatic documentation**

sport-specific testing and optimisation

- **performance analysis of wheelchair athletes on a treadmill?**
- **ride safely on a bike on a treadmill – even if you fall?**
- **perfect documentation – but how?**

the correct choice

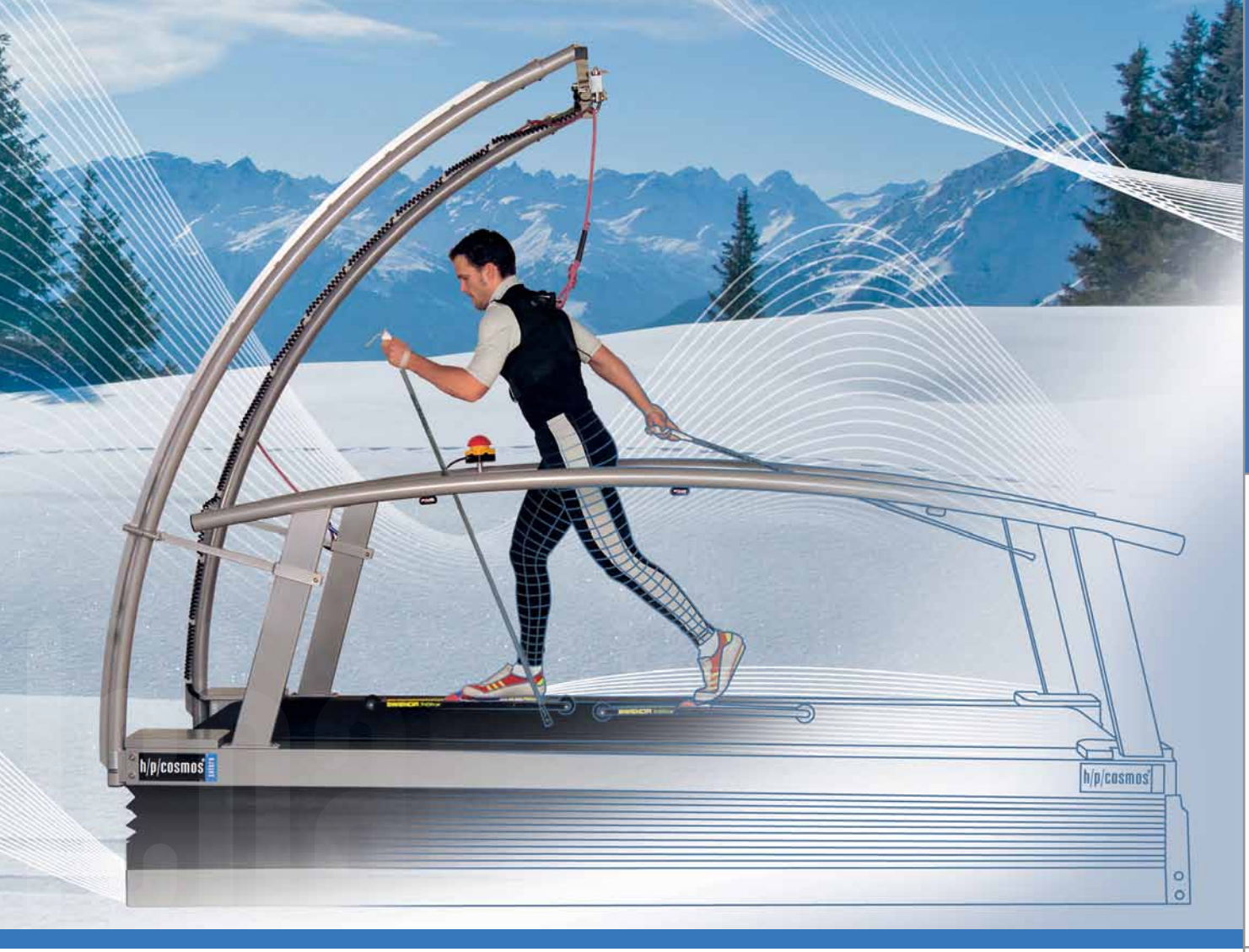
The choice of the right treadmill ergometer for cycling, wheelchairs, hand-bikes and ski rollers is a very demanding one. Not only performance diagnostics but also sport-specific training needs to be conducted safely. With a view to the capital costs and the often limited space in a sports laboratory a multifunctional treadmill that can also be used by runners should be selected.

Based on the h/p/cosmos saturn® there are several hundred treadmill solutions worldwide for running, cycling, wheelchairs, hand-bikes and skiing in use. The customers for such systems are many well-known universities, Olympic training centres, biomechanics and performance diagnostic institutes, training centres, football clubs, clinics as well as sport, rehabilitation and research centres. Based on this experience most of these treadmill solutions are medically approved and are tailored to their specific requirements.

cycling

Whoever has had the privilege to train on a treadmill designed for cycling will know the vast difference to a normal ergometer and will not want to miss the possibility for training and testing.

Cyclists achieve some of the highest speeds of all sports, 80 km/h (~ 50 mph) and more in the top class. A treadmill that is to be used in this environment needs to offer enough space and have extremely fast acceleration – also allowing quick riding out-of saddle. It is crucial that the running belt has a very low rolling resistance for the wheels. The h/p/cosmos saturn® 300/100r with a special speed of 80 km/h allows both physiological performance and biomechanical analysis – under optimal and repeatable conditions.



wheelchairs and hand-bikes

There are many different types and widths of wheelchairs: the classic wheelchair, hand-bike and racing wheelchair or specially built chairs for wheelchair rugby or basketball. Top athletes can achieve very high speeds. A treadmill for this application must offer enough width – at least 100 cm, 125 cm is better. In addition it needs to accommodate various different tyre and wheelchair frame designs and must also run fast enough.

The h/p/cosmos saturn® 300/125r with its deck length of 300 cm and 125 cm width fulfills nearly all requirements. The safety arch with chest harness and fall stop together with the wheelchair stabiliser with integrated „range limiter“ ensure the safety and motivation of the athlete as well as ensuring correct tracking. The special speed of 60 km/h (37.28 mph) ensures that even top athletes can test themselves to the limit.

cross country skiing

For classical style cross-country skiing not only the length and width of the running belt but also the use ski poles is important. Therefore the running belt needs both optimum roll characteristics (low rolling resistance) and must be resistant to piercing by the sharp ski pole tips.

The h/p/cosmos saturn® 300/125rs meets these requirements enabling a standardised and repeatable diagnostics and first-class training possibility.

The h/p/cosmos saturn® 450/300rs offers the ideal system solution for in-line skating and cross-country skiing, particularly using the skating technique. With a running surface of 450 cm x 300 cm and a re-inforced very thick running belt it provides optimal diagnostics and perfect training opportunities in every season of the year.

motivation and safety – for bikes and wheelchairs

A formula 1 driver can only go to his limits when he knows that his car and the track are as safe as can be. Without a safety cockpit, a special seat belt and helmet, he would hardly get the same performance or be able to push himself to his limits. It is similar for cross country skiers, wheelchair users and cyclists if they feel unsafe and are afraid of falling.

Training or testing at speeds of 40, 60 or even up to 80 km/h (49.71 mph) on a treadmill demand a healthy respect. An increased adrenalin level for the athlete and operating personnel is necessary for testing to the limits but nothing must go wrong.

The h/p/cosmos® safety arch prevents a fall in case of a mistake, loss of coordination or stumbling. The fall stop safety system stops the treadmill immediately and automatically by means of a quick-stop device. The strong safety rope prevents the subject from falling down onto the running belt. The wheelchair stabiliser keeps the wheelchair in the correct position and on track. With this sense of safety it's possible to test to the important and sometimes decisive level of exertion necessary for a precise diagnostics.

compatible and future-safe

Particularly in the field of sports medicine, research and professional sports there is often the need to connect an number of systems to the treadmill such as an EMG, ECG, spirometer, blood pressure monitor, external printer, h/p/cosmos para graphics® for documentation, h/p/cosmos para analysis® for lactate diagnostics or possibly other software solutions such as h/p/cosmos para motion® for motion analysis or bio feedback.

Therefore most h/p/cosmos® treadmills offer an option of up to 4 PC interfaces. For the best level of compatibility and safety the coscom® v3 protocol is fully supported.

Under www.coscom.org you will find an impressive list of manufacturers and coscom® compatible devices, the free of charge coscom.dll v3 program library and the protocol description together with tips for implementation and download. A free treadmill simulator is temporarily provided for partners in order to support programmers during the implementation and testing of coscom®.

with optimal movement to success

A treadmill is particularly suitable for bio-mechanical analysis. Which wheelchair drive ring gives the best acceleration? At what cadence does the athlete have the lowest energy consumption? How can the movements be optimised?

The design of the h/p/cosmos saturn® allows good visual access from all 4 sides. You can remove temporarily the rear 2/3 of the side handrails (optional extra) and the hand rail crossbar at the front for a completely unrestricted view during movement analysis.

the future acknowledged – possibilities for future retrofitting

h/p/cosmos® treadmill systems are often in use for many years – for a large number of customers that's already over 20 years. Desires, needs and goals may change and develop over time.

The h/p/cosmos saturn® offers you a wide variety of options and expansion possibilities. For example many systems are multi use for movement analysis or coordination and technique training with unweighting which of course can also be retrofitted. Also for rehabilitation, functional training or speed training h/p/cosmos® offers you the ideal solution. Thanks to the integrated PC interfaces and the open coscom protocol standard there is a tremendous range of compatible software solutions available.

recommended configuration **performance diagnostics bike** h/p/cosmos saturn® 300/100r

pos.	qty.	order number	product description
1.	1	cos30011-01va06	**running machine h/p/cosmos saturn® 300/100r** running surface 300 x 100 cm, speed range 0 ... 40 km/h, elevation - 27 ... + 27%, motor system 11 kW (15 HP), special running surface for cycling, wheelchair and handbike applications, external UserTerminal with TouchScreen, 2 interfaces COM 1 / COM 2 for PC, ECG, ergospirometry-, blood pressure monitor system or printer - compatible to many systems worldwide, incl. PC software h/p/cosmos para control® and h/p/cosmos para graphics® for control and visualisation
2.	1	cos101277	„science port" speed output with raw speed data excluding the "smoothing algorithms"
3.	1	cos100923	variable elevation speed (switch for changing the velocity of elevation amendment from slower to faster)
4.	1	cos00096110030	special speed 0 ... 80 km/h (49.71 mph / 22.22 m/sec)
5.	1	cos14192	handrails 2/3 detachable long / short / rolled - for perfect sagittal view during video analysis
6.	1	cos10172	safety arch with harness, fall stop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
7.	1	cos14903-03-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105 ... 135 cm) for safety arch harness
8.	1	cos14903-03-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch harness
9.	1	cos14903-03-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch harness
10.	1	cos10670-01	spare rope for safety arch
11.	1	cos14825-01	h/p/cosmos sirius® lactate test meter measurement within 10 seconds, storage of 250 values, interface for the PC (optional)
12.	1	cos14827-01	h/p/cosmos sirius® lactate test strips, box with 72 test strips
13.	1	cos11657	startset consumables „lactate" - incl. latex gloves, kidney dish, disinfectant spray, disposable lancets, MEDI-box, etc.
14.	1	cos100668v4pro	software h/p/cosmos para analysis® „professional" evaluation software for performance diagnostics and training control
15.	1	cos13476-01	DELL laptop computer (specifications & details on request)
16.	1	cos13320-01	notebook holder for PC-monitor or laptop - mounted on external UserTerminal
17.	1	cos15580-01	h/p/cosmos satellite print 4 CO - printer rack including colour laser printer
18.	2	cos12769-01	interface adapter / converter USB / RS 232
19.	1	cos00097010035	interface connection cable RS 232, 10 m (32 ft 9.70")
20.	1	cos10223	potential equalisation cable 5 meters / 16ft 4.85" (necessary in medical used rooms and patient environment)
21.	1	cos14097	packing in wooden crate, treadmill partially assembled, running surface 300 x 100 cm (safety arch)
22.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
23.	1	cos10194	installation, commissioning and instruction through authorised and trained personnel
23.	1	cos14316	1 full day workshop treadmill applications in performance testing and training
			system price h/p/cosmos solution for performance diagnostics bike: please ask your dealer for a quotation

specifications h/p/cosmos saturn® 300/100r

running machine:	h/p/cosmos saturn® 300/100r
order number:	cos30011-01va06
applications:	running, cycling & wheelchair for sports, sports science, cardiology, stress tests, rehabilitation & medicine. WITH UserTerminal (TouchPanel display), MCU5. stand alone or remote control via interface.
running surface:	L: 300 cm (118.11") B: 100 cm (39.37") access height: 48 cm (18.90") - shock load reduction for the joints - reinforced running belt with low roll resistance - oil pump and tank for lubrication support - max. permissible load: 280 kg (616 lbs)
speed range:	0...40.0 km/h (0...11.1 m/s) (0...24.6 mph) special speed up to 80 km/h (49.7 mph) on request optional at extra charge.
acceleration:	7 levels (3...131 sec. from 0 to max. speed) from 0.085... 3.704 m/sec² programmable via para control; also for deceleration (for manual or program mode)
elevation:	-27...+27 % (-15.1...+15.1°) adjustable electr., resol. 0.1 % (up to -27 % when using reverse belt rotation)
running direction:	switch for reversing running belt direction (standard) running belt must be adjusted for reverse belt rotation.
motor system:	11 kW (15 HP) 3-phase A.C. motor (maintenance free and brushless; 20 years warranty on main drive motor)
power transmission:	frequency inverter, timing belt, quiet operation
safety: CE 0123	CE0123; directive 93/42/EEC + 2007/47/EC; MDD; machinery directive 2006/42/EC; EN 60601-1; EN 60601-1-1; EN 60601-1-2 (EMC approved); EN 60601-1-4; EN 60601-1-6; EN 62304; EN 957-1; EN 957-6; EN ISO 14971, ISO 9001; EN ISO 13485; emergency-off switch (mains off), potential equalisation bolt, transformer for potential-isolation from the mains, light barriers & STOP function at belt re-entry zones
degree of protection:	class I ⏚ / type B 🚶 / IP 20
classification:	active diagnostic device and active therapeutic device, medical device risk class IIb (MDD) / S, I, A (EN 957)
leakage current:	0.25 mA
ambient condition:	+10...+40 °C (-30...+50 °C on request) 30...70 % humidity (up to 100 % on request) 700...1060 hPa barometric pressure 3000 m (~10000 ft) max. altitude without pressurisation
TouchPanel display:	operation mode, units & profile no, steps, etc. speed (0.1 km/h or m/sec or m/min or mph), time (00:00) in hours, minutes & seconds, elevation (0.1 % or degrees) distance (1 meter...999.9 km or miles), METS (1 MET) program step/number, energy (1 kJ/kcal), fitness index (1) power (1 Watt), heart rate (1 bpm / beat per minute); self diagnosis and on-line observation of speed & elevation
heart rate monitoring:	POLAR WIND WearLink® wireless system, coded transmission range 10 m (32.81 ft) approx. ECG-accurate measurement and automatic control of speed and elevation according to programmed target heart rate („cardio mode")
digital interface:	2 x RS 232 com1/com2 with 115200/9600 bps: incl.PC-protocol, h/p/cosmos coscom® & printer protocol for serial printer, option at extra charge: USB - RS 232 converter
programs:	42 programs / profiles - 6 exercise profiles (scalable, 756 variations) - 28 test profiles (UKK 2 km Walktest, Bruce, Graded Test, Naughton, Ellestad, Gardner, Conconi, Ramp, etc.) - 8 free definable programs with 40 program steps
free PC software:	h/p/cosmos para control® for display & remote control, h/p/cosmos para graphics® for recording & visualisation, inclusive 2 x RS 232 interface cable 1 x 5 m (16 ft 4.85"), 1 x 10 m (32 ft 9.70")
software: (extra charge)	h/p/cosmos para analysis®; h/p/cosmos para motion® PC software for diagnostics, analysis and exercise planning.
free accessories:	user manual, 2 bottle holders and 10 h/p/cosmos 0.5 l drinking bottles, service box incl. special oil, 3 x 5 m (16 ft 4.85") potential equalisation cable 5 m (16ft 4.85")
colour of frame:	grey aluminium RAL 9007 (powder coated)
handrails:	both sides: steel tubes Ø 60 mm (2.36") covering full track length; front: cross bar Ø 36 mm (1.42") with mounting clamps
voltage supply:	400 Volt AC 3~/N/PE 50/60 Hz 32A fuse, dedicated line
size of frame:	L: 340 cm (133.86") B: 140 cm (55.12") H: 138 cm (54.33")
control unit external:	depth: 48 cm (18.90") B: 80 cm (31.50") H: 106 cm (41.73")
net weight:	approx. 1100 kg (2425 lbs)
gross weight:	approx. 1410...1610 kg (3110...3550 lbs)

Optionally available at extra charge: Special frame colours, other handrail designs, special specifications, special voltage supply, special deck sizes and accessories. Weight and package specifications can deviate according to options, accessories and packing.

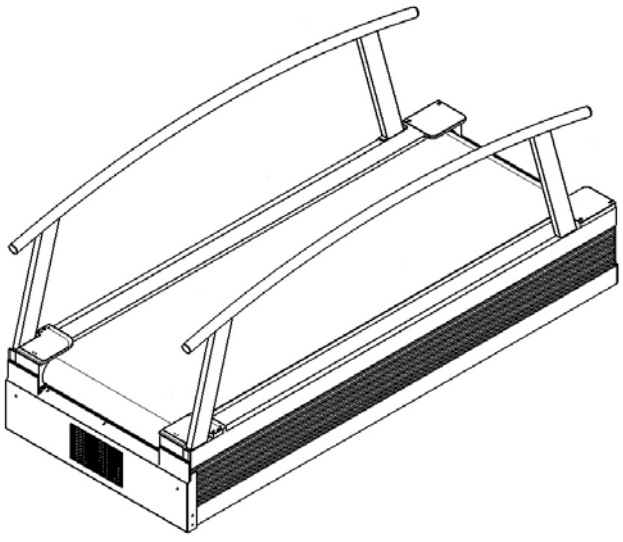
E&OE. Subject to alterations without prior notice.

Performance limitations:
Please consider the natural and physical performance limitations of the single phase 230 volt voltage power supply. The single phase 230 volt voltage power supply is sufficient up to normal fitness performance diagnostics, but is not sufficient for all special high performance applications (uphill/downhill, speed running, controlled jump-ons, sidesteps, heavy subjects at higher speed etc.). 3-phase running machine models
with 3x400 volts power supply (for example model pulsar® 3p, venus or saturn®) are recommended for high performance applications.

Warning!
Installation, commissioning, instruction and maintenance only to be conducted by h/p/cosmos trained and authorised personnel. For running surfaces with L:200 x W:75cm or bigger, special applications, at higher speeds, for subjects with higher risk of falling, where a fall would lead to unacceptable risks (e.g. invasive probes during exercise or recent hip replacement), or if there is not enough safety space behind the treadmill, a fall prevention system (e.g. safety arch with harness & chest belt) is obligatory.

Keep min. safety space of L: 2 m (78.74") x W: 1 m (39.37") or the width of the treadmill (if the treadmill is wider) behind treadmills!

No children on or near to treadmills.



recommended configuration **performance diagnostics wheelchair & handbike** h/p/cosmos saturn® 300/125r

pos.	qty.	order number	product description
1.	1	cos30012-01va03	**running machine h/p/cosmos saturn® 300/125r** running surface 300 x 125 cm, speed range 0 ... 40 km/h, elevation - 27 ... + 27%, motor system 11 kW (15 HP), special running surface for cycling, wheelchair and handbike applications, external UserTerminal with TouchScreen, 2 interfaces COM 1 / COM 2 for PC, ECG, ergospirometry-, blood pressure monitor system or printer - compatible to many systems worldwide, incl. PC software h/p/cosmos para control® and h/p/cosmos para graphics® for control and visualisation
2.	1	cos101277	„science port“ speed output with raw speed data excluding the “smoothing algorithms”
3.	1	cos100923	variable elevation speed (switch for changing the velocity of elevation amendment from slower to faster)
4.	1	cos00096110029	special speed 0 ... 60 km/h (37.28 mph / 16.67 m/sec)
5.	1	cos00096110031	wheelchair stabiliser for treadmill L: 3.0m
6.	1	cos14192	handrails 2/3 detachable long / short / rolled - for perfect sagittal view during video analysis
7.	1	cos10172	safety arch with harness, fall stop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
8.	1	cos14903-03-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105 ... 135 cm) for safety arch harness
9.	1	cos14903-03-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch harness
10.	1	cos14903-03-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch harness
11.	1	cos10670-01	spare rope for safety arch
12.	1	cos14825-01	h/p/cosmos sirius® lactate test meter measurement within 10 seconds, storage of 250 values, interface for the PC (optional)
13.	1	cos14827-01	h/p/cosmos sirius® lactate test strips, box with 72 test strips
14.	1	cos11657	startset consumables „lactate“ - incl. latex gloves, kidney dish, disinfectant spray, disposable lancets, MEDI-box, etc.
15.	1	cos100668v4pro	software h/p/cosmos para analysis® „professional“ evaluation software for performance diagnostics and training control
16.	1	cos13476-01	DELL laptop computer (specifications & details on request)
17.	1	cos13320-01	notebook holder - mounted on external UserTerminal
18.	1	cos15580-01	h/p/cosmos satellite print 4 CO - printer rack including colour laser printer
19.	2	cos12769-01	interface adapter / converter USB / RS 232
20.	1	cos00097010035	interface connection cable RS 232, 10 m (32 ft 9.70“)
21.	1	cos10223	potential equalisation cable 5 meters / 16ft 4.85“ (necessary in medical used rooms and patient environment)
22.	1	cos12575	packing in wooden crate, treadmill partially assembled, running surface 300 x 125 cm (safety arch)
23.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
24.	1	cos10194	installation, commissioning and instruction through authorised and trained personnel
25.	1	cos14316	1 full day workshop treadmill applications in performance testing and training
			system price h/p/cosmos solution for performance diagnostics wheelchair: please ask your dealer for a quotation

specifications h/p/cosmos saturn® 300/125r

running machine:	h/p/cosmos saturn® 300/125r
order number:	cos30012-01va03
applications:	running, cycling & wheelchair for sports, sports science, cardiology, stress tests, rehabilitation & medicine. WITH UserTerminal (TouchPanel display), MCU5. stand alone or remote control via interface.
running surface:	L: 300 cm (118.11") B: 125 cm (49.21") access height: 48 cm (18.90") - shock load reduction for the joints - reinforced running belt with low roll resistance - oil pump and tank for lubrication support - max. permissible load: 280 kg (616 lbs)
speed range:	0...40.0 km/h (0...11.1 m/s) (0...24.6 mph) special speed up to 80 km/h (49.7 mph) optional at extra charge.
acceleration:	7 levels (3...131 sec. from 0 to max. speed) from 0.085... 3.704 m/sec² programmable via para control; also for deceleration (for manual or program mode)
elevation:	-27...+27 % (-15.1...+15.1°) adjustable electr., resol. 0.1 % (up to -27 % when using reverse belt rotation)
running direction:	switch for reversing running belt direction (standard) running belt must be adjusted for reverse belt rotation.
motor system:	11 kW (15 HP) 3-phase A.C. motor (maintenance free and brushless; 20 years warranty on main drive motor)
power transmission:	frequency inverter, timing belt, quiet operation
safety: CE 0123	CE0123; directive 93/42/EEC + 2007/47/EC; MDD; machinery directive 2006/42/EC; EN 60601-1; EN 60601-1-1; EN 60601-1-2 (EMC approved); EN 60601-1-4; EN 60601-1-6; EN 62304; EN 957-1; EN 957-6; EN ISO 14971, ISO 9001; EN ISO 13485; emergency-off switch (mains off), potential equalisation bolt, transformer for potential-isolation from the mains, light barriers & STOP function at belt re-entry zones
degree of protection:	class I ⏚ / type B 🚶 / IP 20
classification:	active diagnostic device and active therapeutic device, medical device risk class IIb (MDD) / S, I, A (EN 957)
leakage current:	0.25 mA
ambient condition:	+10...+40 °C (-30...+50 °C on request) 30...70 % humidity (up to 100 % on request) 700...1060 hPa barometric pressure 3000 m (~10000 ft) max. altitude without pressurisation
TouchPanel display:	operation mode, units & profile no, steps, etc. speed (0.1 km/h or m/sec or m/min or mph), time (00:00) in hours, minutes & seconds, elevation (0.1 % or degrees) distance (1 meter...999.9 km or miles), METS (1 MET) program step/number, energy (1 kJ/kcal), fitness index (1) power (1 Watt), heart rate (1 bpm / beat per minute); self diagnosis and on-line observation of speed & elevation
heart rate monitoring:	POLAR WIND WearLink® wireless system, coded transmission range 10 m (32.81 ft) approx. ECG-accurate measurement and automatic control of speed and elevation according to programmed target heart rate („cardio mode")
digital interface:	2 x RS 232 com1/com2 with 115200/9600 bps: incl.PC-protocol, h/p/cosmos coscom® & printer protocol for serial printer, option at extra charge: USB - RS 232 converter
programs:	42 programs / profiles - 6 exercise profiles (scalable, 756 variations) - 28 test profiles (UKK 2 km Walktest, Bruce, Graded Test, Naughton, Ellestad, Gardner, Ramp, Conconi etc.) - 8 free definable programs with 40 program steps
free PC software:	h/p/cosmos para control® for display & remote control, h/p/cosmos para graphics® for recording & visualisation, inclusive 2 x RS 232 interface cable 1 x 5 m (16 ft 4.85"), 1 x 10 m (32 ft 9.70")
software: (extra charge)	h/p/cosmos para analysis®; h/p/cosmos para motion® PC software for diagnostics, analysis and exercise planning.
free accessories:	user manual, 2 bottle holders and 10 h/p/cosmos 0.5 l drinking bottles, service box incl. special oil, 3 x 5 m (16 ft 4.85") potential equalisation cable 5 m (16ft 4.85")
colour of frame:	grey aluminium RAL 9007 (powder coated)
handrails:	both sides: steel tubes Ø 60mm (2.36") covering full track length front: cross bar Ø 36mm (1.42") with mounting clamps
voltage supply:	400 Volt AC 3~/N/PE 50/60 Hz 32A fuse, dedicated line
size of frame:	L: 340 cm (133.86") B: 165 cm (64.96") H: 138 cm (54.33")
control unit external:	depth: 48 cm (18.90") B: 80 cm (31.50") H: 106 cm (41.73")
net weight:	approx. 1250 kg (2756 lbs)
gross weight:	approx. 1570...1770 kg (3460...3900 lbs)

Optionally available at extra charge: Special frame colours, other handrail designs, special specifications, special voltage supply, special deck sizes and accessories. Weight and package specifications can deviate according to options, accessories and packing.

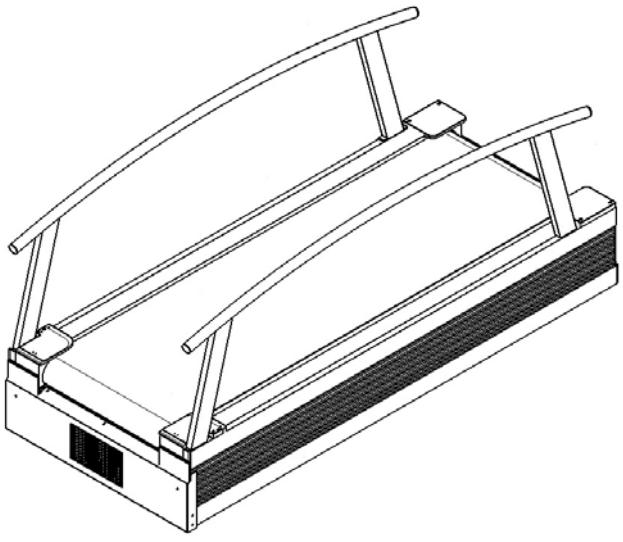
E&OE. Subject to alterations without prior notice.

Performance limitations:
Please consider the natural and physical performance limitations of the single phase 230 volt voltage power supply. The single phase 230 volt voltage power supply is sufficient up to normal fitness performance diagnostics, but is not sufficient for all special high performance applications (uphill/downhill, speed running, controlled jump-ons, sidesteps, heavy subjects at higher speed etc.). 3-phase running machine models
with 3x400 volts power supply (for example model pulsar® 3p, venus or saturn®) are recommended for high performance applications.

Warning!
Installation, commissioning, instruction and maintenance only to be conducted by h/p/cosmos trained and authorised personnel. For running surfaces with L:200 x W:75cm or bigger, special applications, at higher speeds, for subjects with higher risk of falling, where a fall would lead to unacceptable risks (e.g. invasive probes during exercise or recent hip replacement), or if there is not enough safety space behind the treadmill, a fall prevention system (e.g. safety arch with harness & chest belt) is obligatory.

Keep min. safety space of L: 2 m (78.74") x W: 1 m (39.37") or the width of the treadmill (if the treadmill is wider) behind treadmills!

No children on or near to treadmills.



system solution cross country ski classic

recommended configuration **performance diagnostics cross country ski classic** h/p/cosmos saturn® 300/125r

pos.	qty.	order number	product description
1.	1	cos30012-01va03	**unning machine h/p/cosmos saturn® 300/125r** running surface 300 x 125 cm, speed range 0 ... 40 km/h, elevation - 27 ... + 27%, motor system 11 kW (15 HP), special running surface for cycling, wheelchair and handbike applications, external UserTerminal with TouchScreen, 2 interfaces COM 1 / COM 2 for PC, ECG, ergospirometry-, blood pressure monitor system or printer - compatible to many systems worldwide, incl. PC software h/p/cosmos para control® and h/p/cosmos para graphics® for control and visualisation
2.	1	cos101277	„science port“ speed output with raw speed data excluding the “smoothing algorithms”
3.	1	cos100923	variable elevation speed (switch for changing the velocity of elevation amendment from slower to faster)
4.	1	cos00096110029	special speed 0 ... 60 km/h (37.28 mph / 16.67 m/sec)
5.	1	cos12473	re-inforced running belt made of thick rubber approx. 5mm thick, green, for ski-poles, spikes, bikes, with low rolling resistance
6.	1	cos14192ral9007	handrails 2/3 detachable long / short / rolled - for perfect sagittal view during video analysis
7.	1	cos10172	safety arch with harness, fall stop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
8.	1	cos14903-03-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105 ... 135 cm) for safety arch harness
9.	1	cos14903-03-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch harness
10.	1	cos14903-03-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch harness
11.	1	cos10670-01	spare rope for safety arch
12.	1	cos13476	DELL laptop computer (specifications & details on request)
13.	1	cos13320-01	notebook holder - mounted on external UserTerminal
14.	1	cos14825-01	h/p/cosmos sirius® lactate test meter measurement within 10 seconds, storage of 250 values, interface for the PC (optional)
15.	1	cos14827-01	h/p/cosmos sirius® lactate test strips, box with 72 test strips
16.	1	cos11657	startset consumables „lactate“ - incl. latex gloves, kidney dish, disinfectant spray, disposable lancets, MEDI-box, etc.
17.	1	cos100668v4pro	software h/p/cosmos para analysis® „professional“ evaluation software for performance diagnostics and training control
18.	1	cos15580-01	h/p/cosmos® satellite print 4 CO h/p/cosmos printer rack incl. laser printer
19.	2	cos12769-01	interface adapter / converter USB / RS 232
20.	1	cos00097010035	interface connection cable RS 232, 10 m (32 ft 9.70“)
21.	1	cos10223	potential equalisation cable 5 meters / 16ft 4.85“ (necessary in medical used rooms and patient environment)
22.	1	cos12575	packing in wooden crate, treadmill partially assembled, running surface 300 x 125 cm (safety arch)
23.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
24.	1	cos10194	installation, commissioning and instruction through authorised and trained personnel
24.	1	cos14316	1 full day workshop treadmill applications in performance testing and training
			system price solution for performance diagnostics cross country ski classic: please ask your dealer for a quotation

specifications h/p/cosmos saturn® 300/125r

running machine:	h/p/cosmos saturn® 300/125r
order number:	cos30012-01va03
applications:	running, cycling & wheelchair for sports, sports science, cardiology, stress tests, rehabilitation & medicine. WITH UserTerminal (TouchPanel display), MCU5. stand alone or remote control via interface.
running surface:	L: 300 cm (118.11") B: 125 cm (49.21") access height: 48 cm (18.90") - shock load reduction for the joints - reinforced running belt with low roll resistance - oil pump and tank for lubrication support - max. permissible load: 280 kg (616 lbs)
speed range:	0...40.0 km/h (0...11.1 m/s) (0...24.6 mph) special speed up to 80 km/h (49.7 mph) optional at extra charge.
acceleration:	7 levels (3...131 sec. from 0 to max. speed) from 0.085... 3.704 m/sec² programmable via para control; also for deceleration (for manual or program mode)
elevation:	-27...+27 % (-15.1...+15.1°) adjustable electr., resol. 0.1 % (up to -27 % when using reverse belt rotation)
running direction:	switch for reversing running belt direction (standard) running belt must be adjusted for reverse belt rotation.
motor system:	11 kW (15 HP) 3-phase A.C. motor (maintenance free and brushless; 20 years warranty on main drive motor)
power transmission:	frequency inverter, timing belt, quiet operation
safety: CE 0123	CE0123; directive 93/42/EEC + 2007/47/EC; MDD; machinery directive 2006/42/EC; EN 60601-1; EN 60601-1-1; EN 60601-1-2 (EMC approved); EN 60601-1-4; EN 60601-1-6; EN 62304; EN 957-1; EN 957-6; EN ISO 14971, ISO 9001; EN ISO 13485; emergency-off switch (mains off), potential equalisation bolt, transformer for potential-isolation from the mains, light barriers & STOP function at belt re-entry zones
degree of protection:	class I ⏚ / type B 🚶 / IP 20
classification:	active diagnostic device and active therapeutic device, medical device risk class IIb (MDD) / S, I, A (EN 957)
leakage current:	0.25 mA
ambient condition:	+10...+40 °C (-30...+50 °C on request) 30...70 % humidity (up to 100 % on request) 700...1060 hPa barometric pressure 3000 m (~10000 ft) max. altitude without pressurisation
TouchPanel display:	operation mode, units & profile no, steps, etc. speed (0.1 km/h or m/sec or m/min or mph), time (00:00) in hours, minutes & seconds, elevation (0.1 % or degrees) distance (1 meter...999.9 km or miles), METS (1 MET) program step/number, energy (1 kJ/kcal), fitness index (1) power (1 Watt), heart rate (1 bpm / beat per minute); self diagnosis and on-line observation of speed & elevation
heart rate monitoring:	POLAR WIND WearLink® wireless system, coded transmission range 10 m (32.81 ft) approx. ECG-accurate measurement and automatic control of speed and elevation according to programmed target heart rate („cardio mode")
digital interface:	2 x RS 232 com1/com2 with 115200/9600 bps: incl.PC-protocol, h/p/cosmos coscom® & printer protocol for serial printer, option at extra charge: USB - RS 232 converter
programs:	42 programs / profiles - 6 exercise profiles (scalable, 756 variations) - 28 test profiles (UKK 2 km Walktest, Bruce, Graded Test, Naughton, Ellestad, Gardner, Ramp, Conconi etc.) - 8 free definable programs with 40 program steps
free PC software:	h/p/cosmos para control® for display & remote control, h/p/cosmos para graphics® for recording & visualisation, inclusive 2 x RS 232 interface cable 1 x 5 m (16 ft 4.85"), 1 x 10 m (32 ft 9.70")
software: (extra charge)	h/p/cosmos para analysis®; h/p/cosmos para motion® PC software for diagnostics, analysis and exercise planning.
free accessories:	user manual, 2 bottle holders and 10 h/p/cosmos 0.5 l drinking bottles, service box incl. special oil, 3 x 5 m (16 ft 4.85") potential equalisation cable 5 m (16ft 4.85")
colour of frame:	grey aluminium RAL 9007 (powder coated)
handrails:	both sides: steel tubes Ø 60mm (2.36") covering full track length front: cross bar Ø 36mm (1.42") with mounting clamps
voltage supply:	400 Volt AC 3~/N/PE 50/60 Hz 32A fuse, dedicated line
size of frame:	L: 340 cm (133.86") B: 165 cm (64.96") H: 138 cm (54.33")
control unit external:	depth: 48 cm (18.90") B: 80 cm (31.50") H: 106 cm (41.73")
net weight:	approx. 1250 kg (2756 lbs)
gross weight:	approx. 1570...1770 kg (3460...3900 lbs)

Optionally available at extra charge: Special frame colours, other handrail designs, special specifications, special voltage supply, special deck sizes and accessories. Weight and package specifications can deviate according to options, accessories and packing.

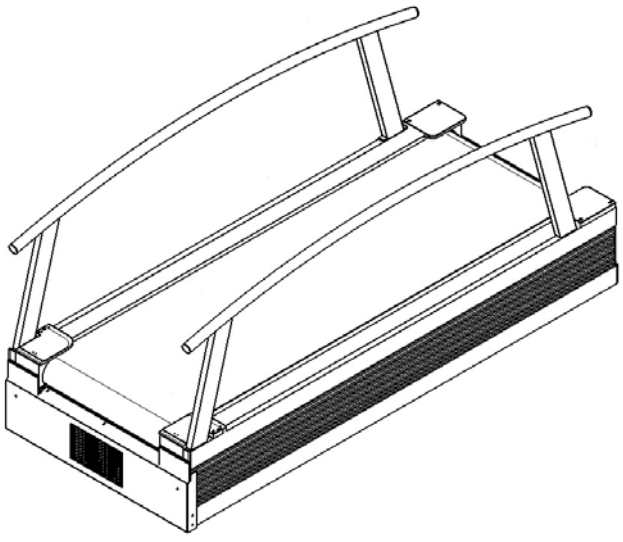
E&OE. Subject to alterations without prior notice.

Performance limitations:
Please consider the natural and physical performance limitations of the single phase 230 volt voltage power supply. The single phase 230 volt voltage power supply is sufficient up to normal fitness performance diagnostics, but is not sufficient for all special high performance applications (uphill/downhill, speed running, controlled jump-ons, sidesteps, heavy subjects at higher speed etc.). 3-phase running machine models
with 3x400 volts power supply (for example model pulsar 3p, venus® or saturn®) are recommended for high performance applications.

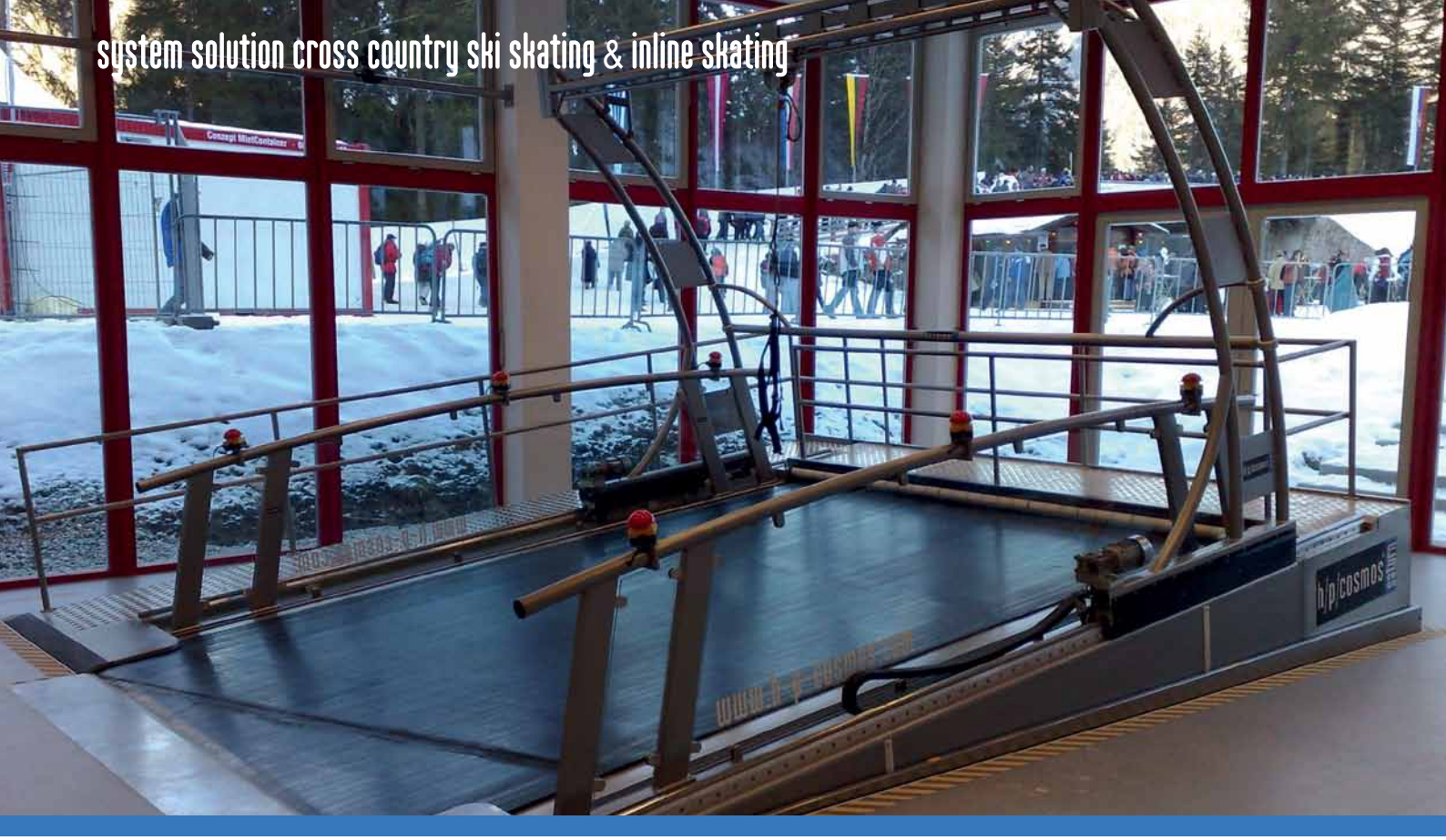
Warning!
Installation, commissioning, instruction and maintenance only to be conducted by h/p/cosmos trained and authorised personnel. For running surfaces with L:200 x W:75cm or bigger, special applications, at higher speeds, for subjects with higher risk of falling, where a fall would lead to unacceptable risks (e.g. invasive probes during exercise or recent hip replacement), or if there is not enough safety space behind the treadmill, a fall prevention system (e.g. safety arch with harness & chest belt) is obligatory.

Keep min. safety space of L: 2 m (78.74") x W: 1 m (39.37") or the width of the treadmill (if the treadmill is wider) behind treadmills!

No children on or near to treadmills.



system solution cross country ski skating & inline skating



recommended configuration **performance diagnostics cross country ski skating** h/p/cosmos saturn® 450/300rs

pos.	qty.	order number	product description
1.	1	cos30012-01va03	**running machine h/p/cosmos saturn® 450/300 rs** running surface 450 x 300 cm, speed range 0 ... 40 km/h, elevation -5...25 % (-2.8...14.0°), motor system 30 kW (40.8 HP), re-inforced very thick rubber running belt also for use with ski rollers, ski poles, spike shoes, cycles. external UserTerminal with TouchScreen, 2 interfaces COM 1 / COM 2 for PC, ECG, ergospirometry-, blood pressure monitor system or printer - compatible to many systems worldwide, incl. PC software h/p/cosmos para control® for control and visualisation
2.	1	cos101277	„science port“ speed output with raw speed data excluding the “smoothing algorithms”
3.	1	cos100481	electric access ramp, allows almost even access from the floor onto the belt of the running deck (running surface).
4.	1	cos00097010033	stage floor / walkway (up to 80 m²) around the treadmill, required if treadmill will be placed in a pit
5.	1	cos14192	handrails 2/3 detachable long / short / rolled - for perfect sagittal view during video analysis
6.	1	cos14071	safety arch with harness, fall stop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
7.	2	cos14903-03-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105 ... 135 cm) for safety arch harness
8.	2	cos14903-03-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch harness
9.	2	cos14903-03-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch harness
10.	1	cos10670-01	spare rope for safety arch
11.	1	cos13476	DELL laptop computer (specifications & details on request)
12.	1	cos13320-01	notebook holder - mounted on external UserTerminal
13.	1	cos14825-01	h/p/cosmos sirius® lactate test meter measurement within 10 seconds, storage of 250 values, interface for the PC (optional)
14.	1	cos14827-01	h/p/cosmos sirius® lactate test strips, box with 72 test strips
15.	1	cos11657	startset consumables „lactate“ - incl. latex gloves, kidney dish, disinfectant spray, disposable lancets, MEDI-box, etc.
16.	1	cos100668v4pro	software h/p/cosmos para analysis® „professional“ evaluation software for performance diagnostics and training control
17.	1	cos14970	h/p/cosmos satellite PC med - medical PC mini-tower according to IEC 60601-1, Windows® OS incl. 19“ LCD Monitor, keyboard, mouse, DVD-ROM writer, FireWireCard, colour laser printer and PC-trolley
18.	3	cos60098010004	pre installation and configuration of satellite PC incl. software solutions at h/p/cosmos factory
19.	3	cos12769-01	interface adapter / converter USB / RS 232
20.	1	cos00097010035	interface connection cable RS 232, 10 m (32 ft 9.70“)
21.	2	cos10223	potential equalisation cable 5 meters / 16 ft 4.85“ (necessary in medical used rooms and patient environment)
22.	1	on request	packing in wooden crates / containers, treadmill partially assembled, running surface 450 x 300 cm (safety arch)
23.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
24.	1	cos10194	installation, commissioning and instruction through authorised and trained personnel
25.	1	cos14316	1 full day workshop treadmill applications in performance testing and training
			system price h/p/cosmos solution for performance diagnostics cross country ski skating: please ask h/p/cosmos and your dealer for a quotation

specifications h/p/cosmos saturn® 450/300rs

running machine:	h/p/cosmos saturn® 450/300rs
order number:	cos30013-01va01
applications:	running for sports & fitness, medical, rehab and scientific use. also for use with ski rollers, ski poles, spike shoes, cycles. WITH external UserTerminal (6 displays & keyboard) MCU 5. Stand-alone operation and/or remote control via interface.
running surface:	L: 450 cm (177.16") x W: 300 cm (118.11") - deck access height: dependent on depth of installation pit. elevated staging (or installation pit) and automatic entry ramp for ground level mounting/dismounting.140 cm (55.12") or pit install for even access. access height without installation pit approx 1400 mm - special size on request - max. permissible load on the deck: 280 kg (560 lbs)
running belt:	- cushioned surface for joint protection - surface of running belt is an adhesive rubber coating - improved anti slip belt surface characteristics, heavy duty belt - total overall belt thickness ca. 9.5 mm (0.37") - temperature resistant: permissible constant temperature range -30...+100°C - water and saltwater resistant, particularly human perspiration - 5 year warranty on the running belt by use with ski sticks with a minimum ski tip diameter of 5.0 mm (excluding shipping, travel and installation)
lubrication:	automatic lubrication system between running deck and running belt
speed range:	0...40.0 km/h (0...11 m/sec.) (0...25 mph) special speed up to 60 km/h on request at extra charge.
acceleration:	7 levels / intensities (in 10...131 sec. from 0 to max. speed) also for deceleration, for manual or program mode. also programmable digitally in m/sec²
elevation:	-5...+25 % (-2.3...+12°) adjustable electr., resolution 0.1 % special elevation on request at extra charge.
motor system:	30 kW (40.8 HP) 3-phase A.C. drive motor (brushless and maintenance free)
power transmission:	inverter drive, timing-belt drive (very dynamic operation)
safety: CE 0123	CE0123; directive 93/42/EEC + 2007/47/EC; MDD; machinery directive 2006/42/EC; EN 60601-1; EN 60601-1-1; EN 60601-1-2 (EMC approved); EN 60601-1-4; EN 60601-1-6; EN 62304; EN 957-1; EN 957-6; ISO 9001; EN ISO 14971; EN ISO 13485; emergency-off-switch (mains off), potential equalisation bolt, transformer for potential-isolation from the mains
degree of protection:	class I / type B / IP 20
classification:	active diagnostic device and active therapeutic device, medical device risk class IIb (MDD) / S, I, A (EN 957)
leakage current:	on request
ambient condition:	+10...+40 °C (-30...+50 °C on request) 30...70 % humidity (up to 100 % on request) 700...1060 hPa barometric pressure 3000 m (~10000 ft) max. altitude without pressurisation
TouchPanel display:	operation mode, units & profile no, steps, etc. speed (0.1 km/h or m/sec or m/min or mph), time (00:00) in hours, minutes & seconds, elevation (0.1 % or degrees) distance (1 meter...999.9 km or miles), METS (1 MET) program step/number, energy (1 kJ/kcal), fitness index (1) power (1 Watt), heart rate (1 bpm / beat per minute); self diagnosis and on-line observation of speed & elevation
heart rate monitoring:	POLAR WIND WearLink® wireless system, coded transmission range 10 m (32.81 ft) approx. ECG-accurate measurement and automatic control of speed and elevation according to programmed target heart rate („cardio mode")
digital interface:	2 x RS 232 com port: com1 with 115200 bps, com2 with 9600 bps; incl. PC protocol, h/p/cosmos coscom® & series printer protocol; optional USB-RS 232-converter at extra charge
programs:	42 programs / profiles - 6 exercise profiles (scalable, 756 variations) - 28 test profiles (UKK 2 km Walktest, Bruce, Graded Test, Naughton, Ellestad, Gardner, Ramp, Conconi etc.) - 8 free definable programs with 40 program steps
free PC software:	h/p/cosmos para control® for display & remote control, inclusive 2 x RS 232 interface cable 1 x 5 m (16 ft 4.85"), 1 x 10 m (32 ft 9.70")
software: (extra charge)	h/p/cosmos para analysis®; h/p/cosmos para motion® PC software for diagnostics, analysis and exercise planning.
free accessories:	user manual, 2 bottle holders and 10 h/p/cosmos 0.5 l drinking bottles, service box incl. special oil, 3 x 5 m (16 ft 4.85") potential equalisation cable 5 m (16ft 4.85")
colour of frame:	grey aluminium RAL 9007 (powder coated)
handrails:	steel tube handrails 60mm diameter on both sides; options, crossbar and other handrail designs at extra charge.
gantry (walkway) at the front:	elevated with the main treadmill frame during inclination. option, available at extra charge. detailed specs depend on the room and available space.
lateral gantry (walkway):	elevated with the main treadmill frame during inclination. option, available at extra charge. detailed specs depend on the room and available space. possible measurements approx: L: 5510 x B: 680 x H: 850 mm
access ramp:	the access ramp allows almost even access from the floor onto the belt of the running deck (running surface). the ramp automa- tically moves to the back and lowers down approx. 25 cm, so the belt re-entry-zone (which is a dangerous capture zone for all kind of running machines) again is at an angle of 90° to the center of the roller while the running machine (running belt) is operated. this option is available at extra charge. detailed specs depend on the room and available space.
stage floor:	this option is available at extra charge. detailed specs depend on the room and available space.
voltage power supply:	1 x 400 Volt AC 3~/N/PE 50/60 Hz 64 A dedicated line & fuse 1 x 230 Volt AC 1~/N/PE 50/60 Hz 16 A dedicated line & fuse
device measurements:	L: 700 cm (275.6") W: 450 cm (177.17") H: 450 cm (177.17") depending on the agreed design and options, the details of installation (pit or on floor with walkway, etgc.) measurements and weight will deviate.
external UserTerminal:	W: 100 cm (39.37") D: 48 cm (18.9") H: 100cm (39.37")
net weight:	approx. 12,000 kg (26,455 lbs)
gross weight:	approx. 14,000 ...1 5,000 kg (30,864 ... 33,069 lbs)

Optionally available at extra charge: Special frame colours, other handrail designs, special specifications, special voltage supply, special deck sizes and accessories. Weight and package specifications can deviate according to options, accessories and packing. E&OE. Subject to alterations without prior notice.

Installation & sizes:
Installation in pit and/or walkway ("stage floor") around the system is recommended.
The room has to be prepared according to drawings and specifications of h/p/cosmos. On request the installation has to be assisted by local workers at the customer's expenses based on local individual conditions of the site. Additional costs may arise for crane, special installations and special building design. It is recommended that a local crane is hired at the expenses of the customer in order to save costs and benefit from local supplier. Installation does not include any preparation of the building and/or power supply and/or the pit and/or the walkway and/or the stage floor. The building, pit, walkway and necessary connections (power, LAN, concrete floor, lights, access ways and aids, etc.) has to be prepared by the customer at the customer's expenses prior to the shipment based on the technical specs and drawings from h/p/cosmos. Installation costs may change significantly in case building is not ready, or in case the bringing in of the parts faces difficulties which were unknown at the date of the order or in case any special custom made design will arise after date of the original order. A car crane has to be supplied at the customer's expenses for approx. 2 full days for unloading and for bringing in the individual parts.

Warning! Installation, commissioning, instruction and maintenance only to be conducted by h/p/cosmos trained and authorised personnel.

gait and moti

identify, analyse and document movement problems

motion analysis
details & videos

on analysis

gait- and motion analysis

gait- and motion analysis

- unrestricted view with the right handrail design
- complete analysis with 2 cameras through reverse belt rotation
- optimised process through camera stands with integrated lighting, calibration boards and middle marking of the running belt

identification, analysis and documentation of moveme

- **movement analysis for optimisation of training?**
- **the ideal equipment – for complete motion analysis?**
- **handrail always in the way – what can I do?**

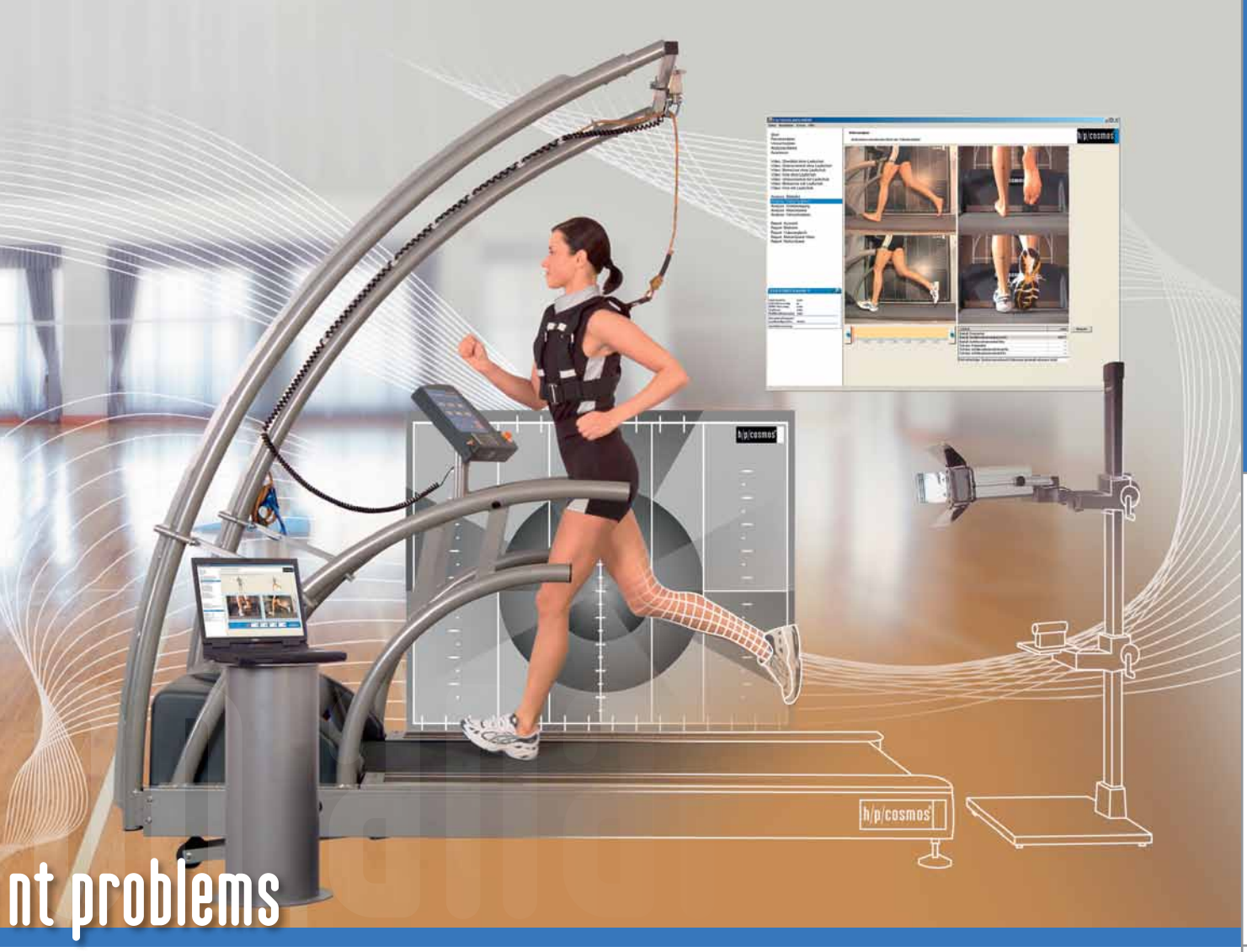
good results – well documented

A static analysis in standing, sitting or lying down is one thing. An analysis of the dynamics is something else. The analysis of the movement is ideally suited to detect motion related problems and solve them. Of course training results, therapeutic or other interventions need to be documented. Here motion analysis places many demands on a treadmill system.

h/p/cosmos® offers an ideal solution for all applications with its diverse range of treadmill models, different handrails, middle marking, reverse belt rotation, safety arch with fall stop, various measurement possibilities, hardware and software.

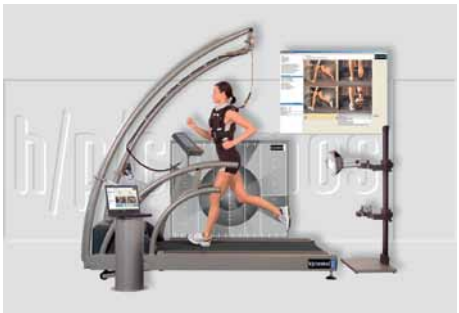
an ideal solution for everybody

The application of motion analysis is very diverse – from running shoe advice, insoles in orthopaedic technology to therapy and progress control in rehabilitation up to optimisation of performance orientated running techniques, scientific and industrial research.



nt problems

h/p/cosmos mercury® med



h/p/cosmos quasar® med

Therefore h/p/cosmos® offers a wide range of system solutions:

standard motion analysis

The h/p/cosmos mercury® med, approved for medical use, with 2 cameras, safety arch and reverse belt rotation is the perfect system solution for therapeutic, rehabilitative or orthopaedic applications.

motion analysis professional

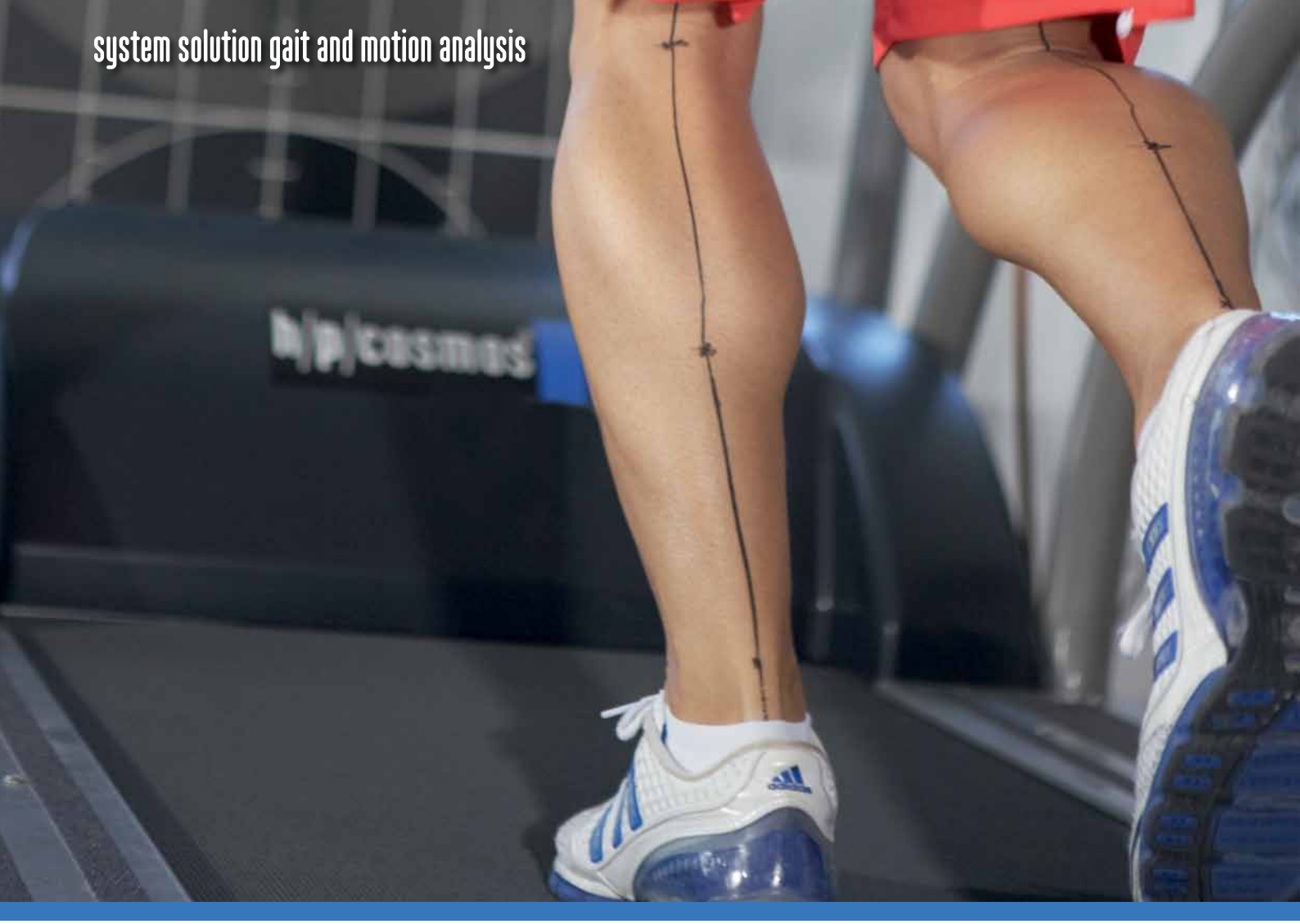
h/p/cosmos quasar® treadmill offers larger more comfortable running surface on which taller subjects can also run using thier full stride length.

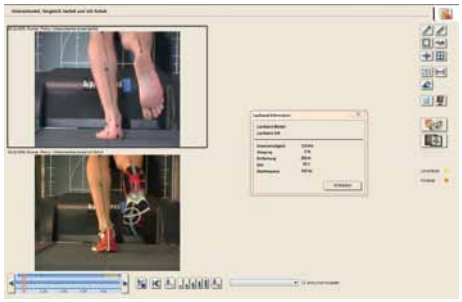
As an alternative the larger h/p/cosmos pulsar® 3p, h/p/cosmos venus® and

h/p/cosmos saturn® models can also be used in combination with additional options and software for motion analysis. For high performance applications a 3-phased powered treadmill like the h/p/cosmos pulsar 3p or bigger is highly recommended.

In addition we also offer the h/p/cosmos gaitway® treadmill solution with integrated force plates (KISTLER® force sensors) for measuring ground reaction forces and a number of time and force related parameters particularly for professional sports, rehabilitation, clinical and biomechanical research.

Another advanced and sophisticated system for biomechanic applications is the zebris® FDM-system based on various h/p/cosmos treadmill models with integrated capacitive sensors. This allows measurement of pressure and/or force distribution and provides comprehensive gait analysis data in possible combination with video and optional EMG. For 3D movement analysis we offer individually tailored solutions with an unrestricted view of the runner on request.





Synchronisation and comparison of videos running barefoot or with different running shoes. The treadmill parameters are recorded and automatically correlated in the para motion® database through the coscom® protocol.

detachable handrails – the right choice

When choosing the handrails we are confronted by two conflicting needs: for the best analysis in the sagittal plane it is better when there is no handrail in front of the camera - because this is usually at the level of the hip and complicates the analysis. On the other hand limited ambulatory users want the support and security of long handrails at least to get started.

Particularly for this requirement in rehabilitative motion analysis we offer detachable handrails.

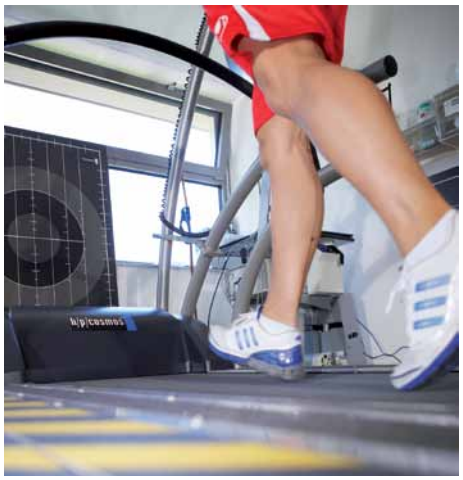
These can be used as long handrails for therapeutic applications. At the same time you can remove the rear part of the handrails for an unrestricted sagittal view of the runner during a motion analysis assessment.

h/p/cosmos para motion® – the quick and easy solution for documented analysis

A software solution for motion analysis must offer the option of multiple measurements, analysis and documentation but it also needs to be user friendly at the same time.

The h/p/cosmos para motion® software solution offers you full support to help you with quick and meaningful analysis, discussions with users and athletes and control over the agreed follow-up actions. You can store your own results in user definable reports that allow quick and easy analysis of the therapeutic results. In addition the integrated control of the treadmill gives you access at all times to many of the relevant parameters.

h/p/cosmos para motion® is not medical software according to EN 62304 and doesn't provide any clinical data or therapeutic recommendations, however it can be a very useful tool to support the control, recording and documentation. Particularly valuable is the automatic correlation of patient data and video recordings in the database together with the integrated documentation of speed and elevation in the video image.



identify crossover – thanks to middle marking

During shots in frontal plane it is important to determine how far apart the feet are and their relation to the centre of gravity. An orientation line is useful for the objective measurements. However the line must not be too conspicuous or the runner may be irritated or influenced to “walk the line”.

The narrow and inconspicuous milled centre marking in the running belt serves a simple guide during frontal shots allowing an objective evaluation of “crossover”.

combined lighting and hight adjustment: the camera stands

Optimal lighting is essential for an accurate analysis. It is particularly important that as much light as possible comes from the direction of the camera and that the camera is always at the same height as the joint that is to be analysed – in order to prevent perspective distortion. Analysis of the ankle needs to conducted just above the running surface and that of the hip at the corresponding height.

The h/p/cosmos® camera stand combines important needs. Lighting is provided by the lighting system which is included in the camera stand set. So the positions of the light source and the camera are almost identical.

The height adjustable camera mount allows simple and quick height changes without the need of re-calibration. So this system combination has a number of clear advantages compared to conventional tripod camera stands.

An additional special ceiling lighting set provides for enough lighting from above which is particular value for precise movement analysis.

clearly marked – with ruler and pen

The analysis of certain problems is easier if the skin is marked with the corresponding points and guidelines. Not all marker pens are usable as they may cause skin irritation. If you want to mark lines on the skin you will need a flexible ruler that adjusts to the contours of the body surface. It is these details that often determine the quality, accuracy and success or failure of the motion analysis.

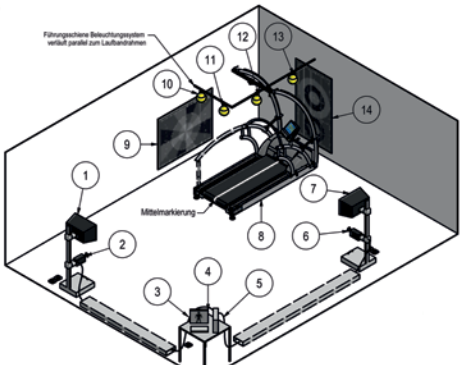
The skin marker is especially suited and approved for marking human skin. With the flexible ruler it is even possible to mark bulging muscles quickly and clearly – for ideal analytical results.

movement analysis without boundaries: foot pressure measurements, integrated force plates and automatic marker tracking

Next to video based movement analysis there are further possibilities to identify biomechanical problems and document therapeutic progress.

In cooperation with Zebris medical GmbH h/p/cosmos® offers a treadmill with an integrated pressure distribution sensor running deck. Furthermore the h/p/cosmos gaitway® treadmill, with integrated KISTLER® force plates, allows the measurement of the vertical ground reaction forces. Both systems can of course be combined with a video analysis system.

If you work with 3D marker based movement analysis with automatic tracking we are pleased to offer the ideal treadmill with an uninterrupted view of the runner.



comprehensive analysis with 2 cameras

Normally two cameras are used for movement analysis. One from the rear for the dorsal plane and one from the side of the treadmill for the sagittal plane. However it is also desirable for views from the front as well as from the opposite side.

This is exactly what reverse belt rotation allows. The subject turns round on the treadmill and runs in the opposite direction. The safety arch with fall-stop means that runner is always safe despite the lack of an unrestricted safety area behind the running surface and they can run without fear. Through this feature you can use a 2 camera set up in a restricted space to carry out a full analysis from all 4 sides. If required and if both, space and budget allow, the h/p/cosmos para motion® software offers an alternative with up to 4 cameras running concurrently so that videos from all 4 sides can be made at the same time.

technology, knowledge and experience from a single source

For the successful introduction and implementation of motion analysis in a therapeutic situation it's not just the ideal treadmill solution that is important but the knowledge of the use of the system in the daily routine.

To this end we offer not only the hard- and software but also the installation and instruction in the operation of the system in cooperation with external specialists with whom we also offer seminars and courses. This means you can work successfully from the start. Dates and details can be found on our website at www.h-p-cosmos.com For individually tailored courses on your premises quotations are available on request.

recommended configuration **gait and motion analysis professional** h/p/cosmos quasar® med

pos.	qty.	order number	product description
1.	1	cos30003va20	**running machine h/p/cosmos quasar® med** running surface 170 x 65 cm, speed range 0 ... 25 km/h, elevation 0 ... 28%, motor system 3.3 kW, interface port com1 for PC, ECG, EMG, incl. PC software h/p/cosmos para control for device control and monitoring. important: for high performance applications please use the 3-phase powered h/p/cosmos pulsar 3p running machine!
2.	1	cos101277	„science port“ speed output with raw speed data excluding the “smoothing algorithms”
3.	1	cos15351-01	handrail short „motion analysis“ left hand side 170/65 - for good sagittal view during video analysis / motion capturing
4.	1	cos10181-01	reverse belt rotation (downhill) - for video recording from all sides and simulating downhill
5.	1	cos14168	centre mark of running belt
6.	1	cos10170	safety arch with harness, fall stop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
7.	1	cos14903-03-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105 ... 135 cm) for safety arch harness
8.	1	cos14903-03-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch harness
9.	1	cos14903-03-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch harness
10.	1	cos10670-01	spare rope for safety arch
11.	1	cos00097010035	interface connection cable RS 232 10 m
12.	1	cos14151	h/p/cosmos calibration-chart front
13.	1	cos14152	h/p/cosmos calibration-chart side
14.	2	cos14239	camera- / spotlight-post „frontal“, 150 cm, adjustable with scaling, incl. spotlight
15.	1	cos100743	ceiling light system for motion analysis incl. conducting rail and 4 pieces 150 W CDM-TD
16.	2	cos14149	FireWire cable set for video cameras, 10 m, 6/6 pin, incl. 2 adapter 6/4
17.	2	cos14148-02	HDV camcorder
18.	1	cos15508v5sta	software h/p/cosmos para motion® „standard“ for analysis and evaluation of the videos with up to 2 cameras, incl. treadmill control-software, analysis schemata, individual report functions, etc. ALTERNATIVE: cos15508v5pro para motion® professional (up to 4 HDV camcorders)
19.	1	cos14970	h/p/cosmos satellite PC med - medical PC mini-tower according to IEC 60601-1, Windows® OS incl. 19“ LCD Monitor, keyboard, mouse, DVD-ROM writer, FireWireCard, colour laser printer and PC-trolley
20.	3	cos60098010004	pre installation and configuration of satellite PC incl. software solutions at h/p/cosmos factory
21.	1	cos16425	steel ruler, flexible, for contour-accurate marking on the skin
22.	1	cos14771	skin marker, water resistant, especially suited for eudermic marking
23.	1	cos10223	potential equalisation cable 5 meters / 16ft 4.85“ (necessary in medical used rooms and patient environment)
24.	1	cos10177	packing on pallet + cardboard hood, treadmill partially assembled, running surface 170 x 65 cm (safety arch)
25.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
26.	1	cos10194	installation, commissioning and instruction through authorised and trained personnel
27.	1	cos14318	1 full day workshop treadmill applications in gait and motion analysis
			system price h/p/cosmos solution for gait and motion analysis: please ask your dealer for a quotation

specifications h/p/cosmos® quasar med

running machine:	h/p/cosmos® quasar med
order number:	cos30003va20
applications:	running for sports, sports medicine, cardiology, rehabilitation, stress tests & medicine WITH UserTerminal (6 displays & keyboard), MCU5. stand alone and/or remote control via interface.
running surface:	L: 170 cm (66.93“) W: 65 cm (25.59“) access height: 23 cm (9.06“) - shock load reduction for the joints - reinforced running belt with profiled surface, 5 mm thick - max. permissible load: 200 kg (440 lbs)
speed range:	0...25.0 km/h (0...6.9 m/s) (0...15.5 mph) special speed up to 45 km/h (27.96 mph) on request
acceleration:	7 levels (3...131 sec. from 0 to max. speed) from 0.047... 2.037 m/sec² programmable via para control also for deceleration (for manual or program mode)
elevation:	0...28 % (0...15.6°) adjustable electr., resolution 0.1 % up to -28 % when using optional reverse belt rotation
running direction:	switch for reversing running belt direction (option, extra charge); running belt must be adjusted for reverse belt rotation. max. permissible reverse speed 5 km/h (3.1 mph) if no safety-harness with fall-stop prevention system is used.
motor system:	3.3 kW (4.5 HP) 3-phase A.C. motor (maintenance free and brushless; 20 years warranty on main drive motor)
power transmission:	frequency inverter, poly-V-belt, very quiet operation
safety: CE 0123	CE0123; directive 93/42/EEC + 2007/47/EC; MDD; machinery directive 2006/42/EC; EN 60601-1; EN 60601-1-1; EN 60601-1-2 (EMC approved); EN 60601-1-4; EN 60601-1-6; EN 62304; EN 957-1; EN 957-6; EN ISO 14971, ISO 9001; EN ISO 13485; emergency-off switch (mains off), potential equalisation bolt, transformer for potential-isolation from the mains
degree of protection:	class I ⏚ / type B 🧍 / IP 20
classification:	active diagnostic device and active therapeutic device, medical device risk class IIb (MDD) / S, I, A (EN 957)
leakage current:	0.2 mA
ambient condition:	+10...+40 °C (-30...+50 °C on request) 30...70 % humidity (up to 100 % on request) 700...1060 hPa barometric pressure 3000 m (~10000 ft) max. altitude without pressurisation
display (resolutions):	6 LCD displays, 4 LEDs for operation modes, 20 LEDs for display of units & profile no, steps, etc. speed (0.1 km/h or m/sec or m/min or mph), time (00:00) in hours, minutes & seconds, elevation (0.1% or degrees) distance (1 meter...999.9 km or miles), METS (1 MET) program step/number, energy (1 kJ/kcal), fitness index (1) power (1 Watt), heart rate (1 bpm / beat per minute)
heart rate monitoring:	POLAR wireless, 1 channel receiver, ECG-accurate measurement and display beat-to-beat; automatic control of speed and elevation according to programmed target heart rate („cardio mode“)
digital interface:	1 x RS 232 com1 with 9600bps: incl. PC-protocol, h/p/cosmos coscom® & printer protocol serial. option extra charge: USB-RS 232-converter; com2; com3 with 115.200bps; com4.
programs:	42 programs / profiles - 6 exercise profiles (scalable, 756 variations) - 28 test profiles (UKK 2 km Walktest, Bruce, Graded Test, Naughton, Ellestad, Gardner, Ramp, Conconi etc.) - 8 free definable programs with 40 program steps
free PC software:	h/p/cosmos para control® for display & remote control inclusive 1 x RS 232 interface cable 5 m (16 ft 4.85“).
software (at extra charge):	h/p/cosmos para graphics®, para analysis® & para motion®. PC software for monitoring, recording & motion analysis.
accessory (free of charge):	user manual, bottle holder with 2 h/p/cosmos 0.5 l bottles, service box incl. special oil, 5 m (16 ft 4.85“) potential equalisation cable
colour of frame:	grey aluminium RAL 9007 (powder coated)
handrails:	both sides: steel tubes Ø 60mm (2.36“) covering 1/3 track length front: cross bar Ø 36mm (1.42“) with mounting clamps
voltage supply:	230 Volt AC 1~/N/PE 50/60 Hz 16A fuse, dedicated line
size of frame:	L: 230 cm (90.54“) W: 105 cm (41.34“) H: 145 cm (57.08“)
net weight:	approx. 380 kg (836 lbs)
gross weight:	approx. 530...580 kg (1166...1276 lbs)

Optionally available at extra charge: Special frame colours, other handrail designs, special specifications, special voltage supply, special deck sizes and accessories. Weight and package specifications can deviate according to options, accessories and packing.

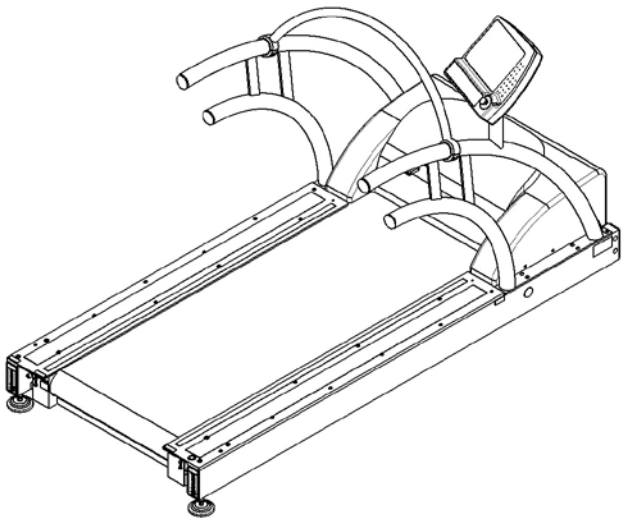
E&OE. Subject to alterations without prior notice.

Performance limitations:
Please consider the natural and physical performance limitations of the single phase 230 volt voltage power supply. The single phase 230 volt voltage power supply is sufficient up to normal fitness performance diagnostics, but is not sufficient for all special high performance applications (uphill/downhill, speed running, controlled jump-ons, sidesteps, heavy subjects at higher speed etc.). 3-phase running machine models
with 3x400 volts power supply (for example model pulsar® 3p, venus® or saturn®) are recommended for high performance applications.

Warning!
Installation, commissioning, instruction and maintenance only to be conducted by h/p/cosmos trained and authorised personnel. For running surfaces with L:200 x W:75cm or bigger, special applications, at higher speeds, for subjects with higher risk of falling, where a fall would lead to unacceptable risks (e.g. invasive probes during exercise or recent hip replacement), or if there is not enough safety space behind the treadmill, a fall prevention system (e.g. safety arch with harness & chest belt) is obligatory.

Keep min. safety space of L: 2 m (78.74“) x W: 1 m (39.37“) or the width of the treadmill (if the treadmill is wider) behind treadmills!

No children on or near to treadmills.



system solution gait and motion analysis standard

recommended configuration **gait and motion analysis standard** h/p/cosmos mercury® med

pos.	qty.	order number	product description
1.	1	cos30000va08	**running machine h/p/cosmos mercury med** running surface 150 x 50 cm, speed 0 ... 22 km/h, elevation 0 ... 25 %, drive motor 3.3 kW interface port com1 for PC, ECG, ergospirometry-, blood pressure monitor system or printer - compatible to many systems worldwide, incl. PC software h/p/cosmos para control for device control and monitoring. important: for high performance applications please use the 3-phase powered h/p/cosmos pulsar 3p running machine!
2.	1	cos11456	handrail rolled short 1 pillar 150/50 - for good sagittal view during video analysis / motion capturing
3.	1	cos00098100045	reverse belt rotation (downhill) - for video recording from all sides and simulating downhill
4.	1	cos14288	centre mark of running belt
5.	1	cos10079	safety arch with harness, fall stop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
6.	1	cos14903-03-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105 ... 135 cm) for safety arch harness
7.	1	cos14903-03-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch harness
8.	1	cos14903-03-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch harness
9.	1	cos10670-01	spare rope for safety arch
10.	1	cos00097010035	interface connection cable RS 232 10 m
11.	1	cos14151	h/p/cosmos calibration board „frontal“ for camera adjustment
12.	1	cos14152	h/p/cosmos calibration board „sagittal“ for camera adjustment
13.	2	cos14239	camera- / spotlight-post „frontal“, 150 cm, adjustable with scaling, incl. spotlight
14.	1	cos100743	ceiling light system for motion analysis incl. conducting rail and 4 pieces 150 W CDM-TD
15.	2	cos14149	FireWire cable set for video cameras, 10 m, 6/6 pin, incl. 2 adapter 6/4
16.	2	cos14148-02	HDV camcorder
17.	1	cos15508v5sta	software h/p/cosmos para motion® „standard“ for analysis and evaluation of the videos with up to 2 cameras, incl. treadmill control-software, analysis schemata, individual report functions etc.
18.	1	cos14970	h/p/cosmos satellite PC med - medical PC mini-tower according to IEC 60601-1, Windows® OS incl. 19“ LCD Monitor, keyboard, mouse, DVD-ROM writer, FireWireCard, colour laser printer and PC-trolley
19.	3	cos60098010004	pre installation and configuration of satellite PC incl. software solutions at h/p/cosmos factory
20.	1	cos16425	steel ruler, flexible, for contour-accurate marking on the skin
21.	1	cos14771	skin marker, water resistant, especially suited for eudermic marking
22.	1	cos10223	potential equalisation cable 5 meters / 16ft 4.85“ (necessary in medical used rooms and patient environment)
23.	1	cos10177	packing on pallet + cardboard hood, treadmill partially assembled, running surface 170 x 65 cm (safety arch)
24.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
25.	1	cos10194	installation, commissioning and instruction through authorised and trained personnel
26.	1	cos14318	1 full day workshop treadmill applications in gait and motion analysis
			system price h/p/cosmos solution for gait and motion analysis standard: please ask your dealer for a quotation

specifications h/p/cosmos® mercury med

running machine:	h/p/cosmos® mercury med
order number:	cos30000va08
applications:	running for sports, sports medicine, cardiology, rehabilitation, stress tests & medicine WITH UserTerminal (display & keyboard), MCU5. stand alone or remote control via interface.
running surface:	L: 150 cm (59.05“) W: 50 cm (19.68“) access height 18 cm (7.09“) - shock load reduction for the joints - belt surface with non slip material - max. permissible load: 200 kg (440 lbs)
speed range:	0...22.0 km/h (0...6.1 m/s) (0...13.6 mph) special speed up to 30 km/h (18.64 mph) on request.
acceleration:	7 levels (3...131 sec. from 0 to max. speed) also for deceleration (for manual or program mode)
elevation:	0...25 % (0...14.0°) adjustable electr., resolution 0.1% (-25 %...+25 % when using optional reverse belt rotation)
running direction:	switch for reversing running belt direction (option, extra charge); running belt must be adjusted for reverse belt rotation. max. permissible reverse speed 5 km/h (8.0 mph) if no safety-harness with fall-stop prevention system is used.
motor system:	3.3 kW (4.5 HP) 3-phase A.C. motor (maintenance free and brushless; 20 years warranty on main drive motor)
power transmission:	frequency inverter, poly-V-belt, very quiet operation
safety: CE 0123	CE0123; directive 93/42/EEC + 2007/47/EC; MDD; machinery directive 2006/42/EC; EN 60601-1; EN 60601-1-1; EN 60601-1-2 (EMC approved); EN 60601-1-4; EN 60601-1-6; EN 62304; EN 957-1; EN 957-6; EN ISO 14971; ISO 9001; EN ISO 13485; emergency-off switch (mains off), potential equalisation bolt, transformer for potential-isolation from the mains, light barriers & STOP function at belt re-entry zones
degree of protection:	class I ⏚ / type B 🚶 / IP 20
classification:	active diagnostic device and active therapeutic device, medical device risk class IIb (MDD) / S, I, A (EN 957)
leakage current	0.2 mA
ambient condition:	+10...+40 °C (-30...+50 °C on request) 30...70 % humidity (up to 100 % on request) 700...1060 hPa barometric pressure 3000 m (~10000 ft) max. altitude without pressurisation
display (resolutions):	6 LCD displays, 4 LEDs for operation mode, 20 LEDs for display of units & profile no, steps, etc. speed (0.1 km/h or m/sec or m/min or mph), time (00:00) in hours, minutes & seconds, elevation (0.1 % or degrees) distance (1 meter...999.9 km or miles), METS (1 MET) program step/number, energy (1 kJ/kcal), fitness index (1) power (1 Watt), heart rate (1 bpm / beat per minute)
heart rate monitoring:	POLAR wireless, 1 channel receiver, ECG-accurate measurement and display beat-to-beat; automatic control of speed and elevation according to programmed target heart rate („cardio mode“)
digital interface:	1 x RS 232 com1 with 9600bps: incl. PC-protocol, h/p/cosmos coscom® & printer protocol serial. option extra charge: USB-RS 232-converter; com2; com3 with 115.200bps; com4.
programs:	42 programs / profiles - 6 exercise profiles (scalable, 756 variations) - 28 test profiles (UKK 2 km Walktest, Bruce, Graded Test, Naughton, Ellestad, Gardner, Ramp, Conconi etc.) - 8 free definable programs with 40 program steps
free PC software:	h/p/cosmos para control® for display & remote control inclusive 1 x RS 232 interface cable 5 m (16 ft 4.85“).
software: (extra charge)	h/p/cosmos para graphics®, para analysis® & para motion®. PC software for monitoring, recording & analysis.
accessory (free of charge):	user manual, bottle holder with 2 h/p/cosmos 0.5 l bottles, service box incl. special oil, 5 m (16 ft 4.85“) potential equalisation cable
colour of frame:	grey aluminium RAL 9007 (powder coated)
handrails:	steel tube handrails 60 mm (2.36“) diameter on both sides
voltage supply:	230 Volt AC 1~/N/PE 50/60 Hz 15A fuse, dedicated line
size of frame:	L: 210 cm (82.67“) B: 82 cm (32.28“) H: 136 cm (53.53“)
net weight:	approx. 200 kg (440 lbs)
gross weight:	approx. 300...350 kg (660...770 lbs)

Optionally available at extra charge: Special frame colours, other handrail designs, special specifications, special voltage supply, special deck sizes and accessories. Weight and package specifications can deviate according to options, accessories and packing.

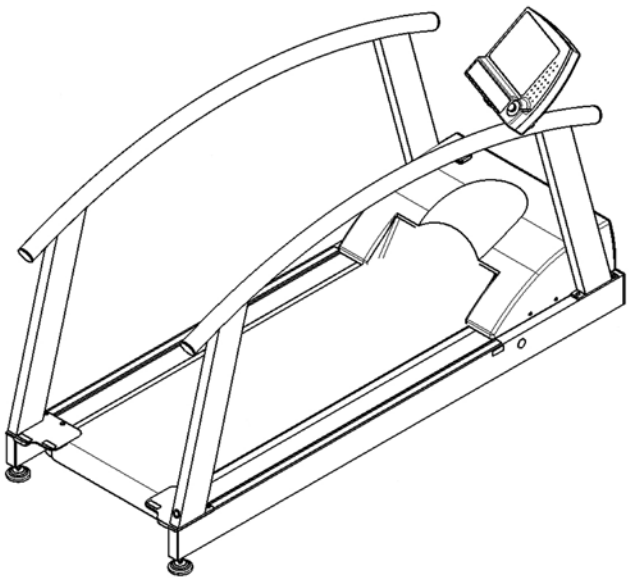
E&OE. Subject to alterations without prior notice.

Performance limitations:
Please consider the natural and physical performance limitations of the single phase 230 volt voltage power supply. The single phase 230 volt voltage power supply is sufficient up to normal fitness performance diagnostics, but is not sufficient for all special high performance applications (uphill/downhill, speed running, controlled jump-ons, sidesteps, heavy subjects at higher speed etc.). 3-phase running machine models
with 3x400 volts power supply (for example model pulsar® 3p, venus® or saturn®) are recommended for high performance applications.

Warning!
Installation, commissioning, instruction and maintenance only to be conducted by h/p/cosmos trained and authorised personnel. For running surfaces with L:200 x W:75cm or bigger, special applications, at higher speeds, for subjects with higher risk of falling, where a fall would lead to unacceptable risks (e.g. invasive probes during exercise or recent hip replacement), or if there is not enough safety space behind the treadmill, a fall prevention system (e.g. safety arch with harness & chest belt) is obligatory.

Keep min. safety space of L: 2 m (78.74“) x W: 1 m (39.37“) or the width of the treadmill (if the treadmill is wider) behind treadmills!

No children on or near to treadmills.



speed training

faster through specific training in a speed lab®

speed training
details & videos

g

speed- & functional training

speed- & functional training

- supraliminal stimulation with optimal acceleration and speed of up to 45 km/h (~ 28 mph)
- safe training thanks to the safety arch, wide running surface and short handrails
- ideal knee lift thanks to the special crossbar handrail and 25% inclination

speed training

faster through specific training in a speed lab®

- **speed training on a treadmill?**
- **improved knee lift and better tensile behaviour?**
- **safer sprints and over-speed training on a treadmill – but how?**

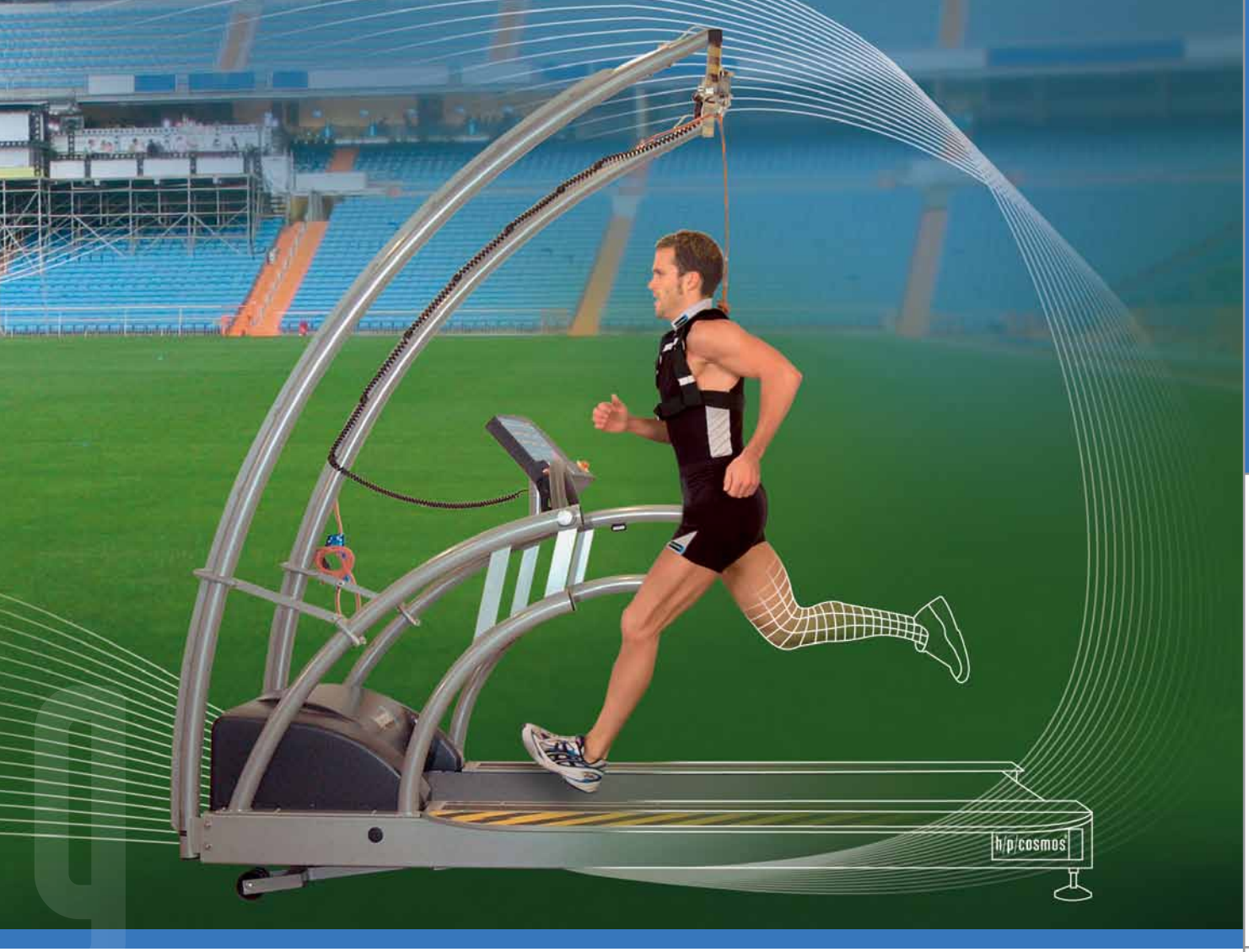
performance for more speed

In nearly all performance sports speed, agility and elasticity have become more important in recent years. The faster athletes have a definite advantage. A treadmill system can make a crucial improvement to speed training – subject to certain essential requirements and the application of the latest methodology.

For sports such as American football, rugby, football or handball speeds of up to 40 km/h and more are necessary. These speeds need to be reached on a treadmill with athletes who sometimes weigh more than 100 kg (220 lbs). For that a treadmill needs power apart from anything else. Comparable with industrial machinery or electric ovens and many other types of equipment the standard 230 Volt / 16 Amp power supply doesn't provide enough power and a 3 phase supply with 3 x 400 Volt is necessary. This avoids unwanted speed reduction or even automatic shut downs due to overload.

Speeds of 40 km/h (optionally 45 km/h / ~ 28 mph) and programmable acceleration levels together with many other functions and design details make the h/p/cosmos pulsar® 3p with its 3 phase power supply unique, particularly for speed training. The drive system allows even heavy subjects to reach speeds of over 40 km/h within a few seconds and thus creates the ideal conditions for effective speed training. But this has to be approached carefully. Firstly the 100% performance limit needs to be established so that the training stimulus can be set to between 101 and 105%. Additionally unweighting through a body weight support and vest system or holding on to the handrails may be used.

Overloading can cause negative training results or even injury and must be avoided at all costs. Know how of the correct systematic and meticulous documentation is essential. h/p/cosmos® offers various expandable configurations of a SpeedLab®. We support you not just in the selection of the hardware but also in the methodology, analysis and documentation with the support from experts from the fields of speed training, flexibility training and functional training.



only safe training can be effective!

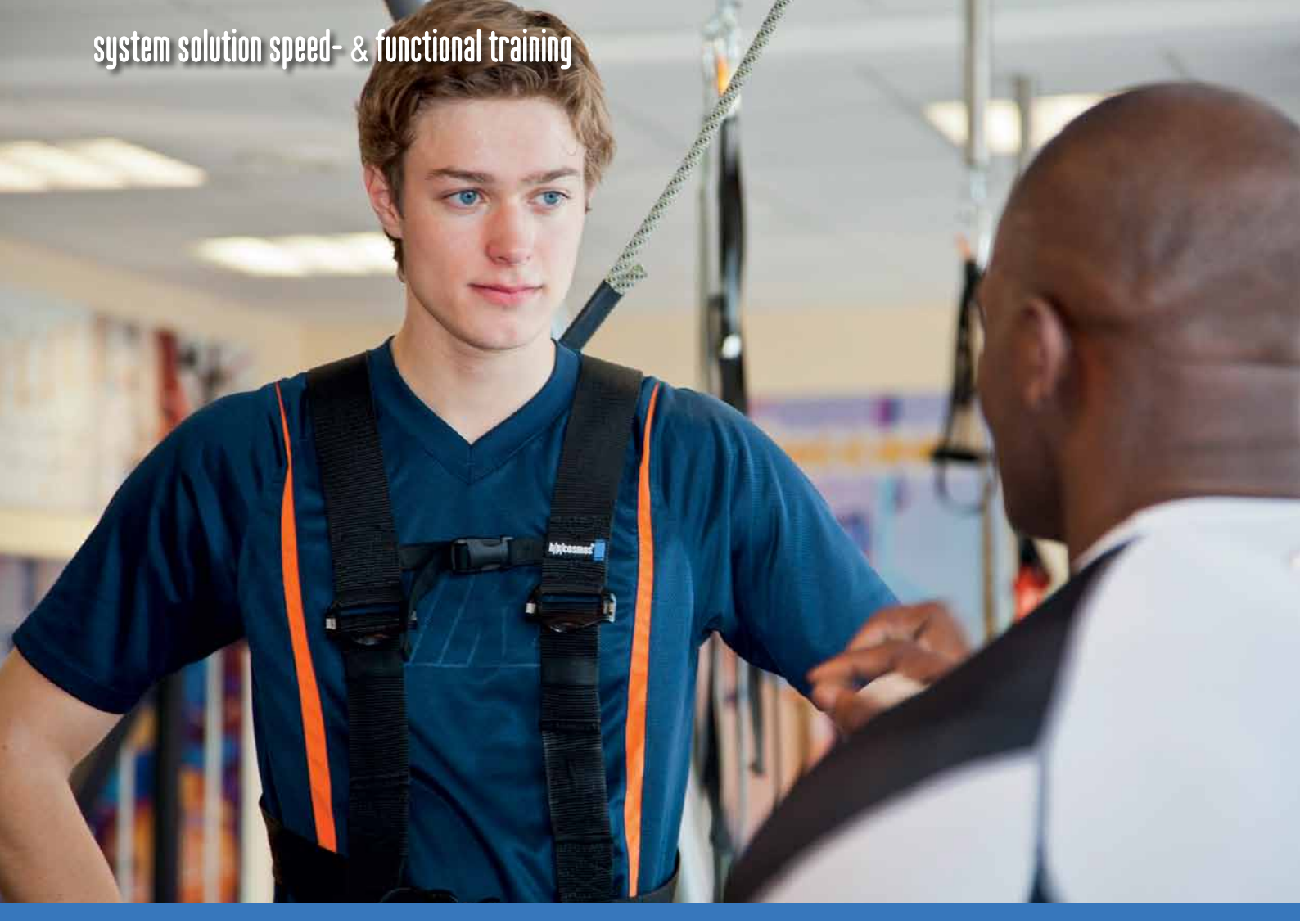
A formular 1 driver can only drive on the limit when he knows that both his car and the track are as safe as possible. Without the safety cocpit and helmet it is unlikely that he would reach the same level of performance. It‘s similar for speed training. A subject who feels insecure and is worried that he may fall will not train to the limit and certainly won‘t train over the threshold. It would also be irresponsible for the trainers and diagnosticians to expose an athlete to the dangers of a fall at high speeds since under maximum demand on the 100% performance limit lack of coordination or even stumbling may occur.

Therefore h/p/cosmos® offers a complete package of safety measures for speed training. The safety arch with chest belt and harness not only prevents from falling in case of stumbling or fatigue, but at the same also brings the running belt automatically to a complete stop through the quick-stop system. The solid steel foot board on the left hand side has been widened for speed training and has both an anti-slip surface and clear hazard markings. This allows the subject to jump on and off from the treadmill safely, if necessary. In addition the left hand handrail has been shortened to prevent impact injuries to the hip and a hand grip has been added “just where you need it”. Often the treadmill will be jumped on to first when it is running at 36 km/h then accelerated within a few seconds to 40 km/h or more. The right ergonomic design and methodoligy is necessary to achieve the best results. The athletes can therefore train safely upto their individual limits. The shortened handrail also serves for unrestricted visual access during motion capturing and therefore makes up for a very ergonomic solution in this field of application.

over-frequency training for more speed

Particularly during the introduction to higher speeds over-frequency training with unweighting is a good, new and high intensity training stimulus.

For effective over-frequency training h/p/cosmos® offers a range of possibilities. The special crossbar developed for speed training is the quickest and easiest form of unweighting and allows full concentration on the footwork for example during knee-lift exercise. In case that arms also need to be used during over-frequency training the h/p/cosmos airwalk® offers the ideal solution with its single point dynamic suspension giving total freedom of movement, even for side stepping, 360s and backwards running.



improved knee lift through 25% elevation and the special removable crossbar handrail

A common training goal in speed training is the improved knee lift. To facilitate this, the treadmill must have sufficient elevation while allowing over-frequency training through unweighting.

The specially developed speed training crossbar allows quick and easy unweighting. At the same time the curved design allows the subject ample leg room. Because of the elevation of up to 25% the subject is forced to actively bring his foot forwards and upwards. Thus the knee lift is enhanced and optimised. The 3 x 400 Volt 3 phase power supply is also necessary in this situation, many treadmills that only have a 230 Volt single phase power supply would shut down due to overload or be subject to unacceptable speed variations.

the future included

The speed training treadmill solution based on the h/p/cosmos pulsar® 3p allows you many additional future possibilities.

You want to run performance diagnostics as well? With up to 3 communication interface ports the h/p/cosmos pulsar® 3p will fulfill all your needs. In addition to diverse software solutions for performance diagnostics, spiroergometry or ergometry there are many other compatible hardware and software solutions. Have a look at the compatibility list at www.coscom.org.

h/p/cosmos pulsar® 3p, the right choice for now and the future.

functional training with the new robowalk® expander

In daily training we often need to do one dimensional, one directional movements. But if we keep doing these only in our training, we would have deficits in other directions and dimensions. Rotational movements are dominant especially in all ball sports and other Olympic sports. We need to incorporate these in our training to fill up these gaps in our strength. For good results we need to move fast and safe in six degrees of freedom: forward/back, up/down, left/right, pitch, yaw and roll. Expander training is a very well established methodology to achieve this goal.

For functional training combined with walking or running, gait correction, eccentric training and sports rehabilitation the h/p/cosmos pulsar® 3p can be retrofitted with the robowalk® expander-system.

In cooperation with the functional training expert **Lamar Lowery** a number of special training programs have been developed not only for athletes, but also for fitness sportsmen and for rehabilitation purpose. It has become an important element of the SpeedLab® methodology. Videos can be found on www.youtube.com/hpcosmos.

documented success motivates!

Success motivates. Particularly when it is well documented.

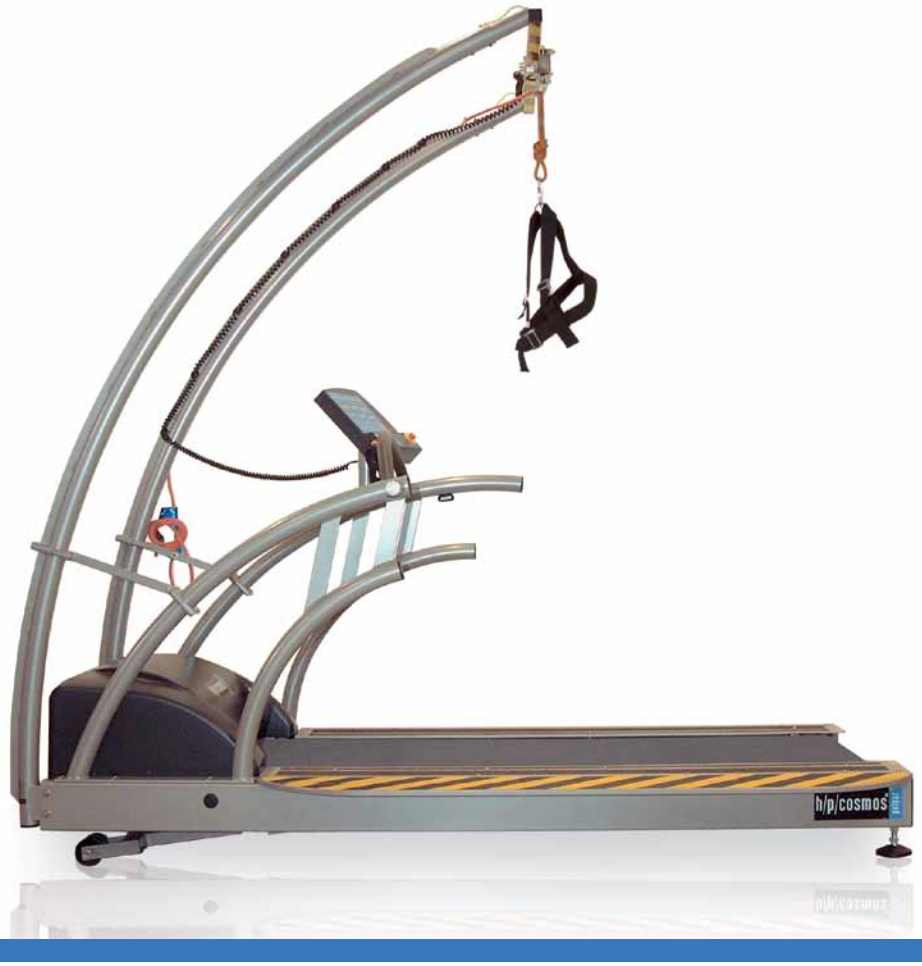
As soon as the training session has been completed the laser printer connected to the treadmill prints an informative report. This allows quick and simple documentation of the training results. When a digital record is necessary the h/p/cosmos para graphics® software allows storage of the training results on a PC. In addition the load and step profiles can be controlled from the PC and displayed or even exported in other data formats for further processing in a spread sheet.

improved tensile behaviour

In addition to strengthening the knee lift, the treadmill is also well suited to improving the tensile behaviour. Results form the field indicate that this may offer significant improvements particularly for team sports.

Since the treadmill belt pulls the foot back during over-frequency training, the subject must bring his foot quickly and actively forwards. Thus the tensile relations during functional movements are trained and improved.

A current series of tests are being run to determine what role the new robowalk® expander system, originally developed for locomotion therapy for neurological patients, may also play for application in speed training and flexibility training for improved tensile behaviour. A number of applications in gait correction, eccentric training and sports rehabilitation are possible with the new robowalk® due to variably adjustable traction force, resistance force, vertical and horizontal angle of force. Not infrequently the methods and equipment used in athletic training and in neurological rehabilitation of stroke patients are the same, it's only the speeds and loads which are dramatically different.



recommended configuration **speed- & functional training** h/p/cosmos pulsar® 3p

pos.	qty.	order number	product description
1.	1	cos30004va04	**running machine h/p/cosmos pulsar® 3p** running surface 190 x 65 cm, speed 0 ... 40 km/h, elevation -25 ... +25 %, drive motor 4.3 kW with high-performance 3-phase power supply, 2 interface ports com1/ com2 for PC-, ECG, ergospirometry-, blood pressure monitor system or printer - compatible to many systems worldwide, incl. PC software h/p/cosmos para control® and para graphics® for device control and visualisation
2.	1	cos10159	special speed 0 ... 45 km/h / 0 ... 28 mph / 0 ...12.5 m/s
3.	1	cos15133-02	handrail crossbar „speed“, in front
4.	1	cos14763-01	handrail „speed“ shortened including handhold, left hand side (surcharge)
5.	1	cos14764	footboard „speed“ for safe jumping on and off the moving running belt, extra width and yellow/black safety marking
6.	1	cos10170	safety arch with harness, fall stop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
7.	5	cos14903-03-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105 ... 135 cm) for safety arch harness
8.	5	cos14903-03-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch harness
9.	5	cos14903-03-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch harness
10.	1	cos10670-01	spare rope for safety arch
11.	1	cos13476-01	DELL laptop computer
12.	2	cos12769-01	interface adapter / converter USB / RS 232
13.	1	cos00097010035	interface connection cable RS 232 10 m (32 ft 9.70“)
14.	1	cos30022va02	**h/p/cosmos robowalk® expander F (front),** including 4 ropes, forces and angles of forces are adjustable vertically & horizontally
15.	1	cos30023va02	**h/p/cosmos robowalk® expander B (back),** including 4 ropes, forces and angles of forces are adjustable vertically & horizontally
16.	5	cos101050-S	leg cuff thigh, size S (colour code red, for thigh circumference 250 ... 390 mm / 9.8“ ... 15.4“) for robowalk expander
17.	5	cos101050-m	leg cuff thigh, size M (colour code blue, for thigh circumference 360 ... 510 mm / 14.2“ ... 20.1“) for robowalk expander
18.	5	cos101050-L	leg cuff thigh, size L (colour code yellow, for thigh circumference 490 ... 750 mm / 19.3“ ... 29.5“) for robowalk expander
19.	5	cos101051	leg cuff shank, size XS (for ankle circumference 140 ... 270 mm / 5.5“ ... 10.6“) for robowalk expander
20.	1	cos10177	packing on pallet + cardboard hood, treadmill partially assembled, running surface 170 x 65 cm (safety arch)
21.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
22.	1	cos10194	installation, commissioning and instruction through authorised and trained personnel
23.	1	cos101341	**1 full day workshop treadmill applications in speed & agility**
24.	2	cos101094	**1 full day practical workshop robowalk & functional training**, details in handling equipment & software
			system price h/p/cosmos treadmill solution for speed training: please ask your dealer for a quotation

specifications h/p/cosmos pulsar® 3p

running machine:	h/p/cosmos pulsar® 3p
order number:	cos30004va04
applications:	running for sports, sports medicine, cardiology, rehabilitation, stress tests & medicine WITH UserTerminal (display & keyboard), MCU5. stand alone or remote control via interface.
running surface:	L: 190 cm (74.80“) W: 65 cm (25.59“) access height: 23 cm (9.06“) - shock load reduction for the joints - belt surface with non slip material - max. permissible load: 200 kg (440 lbs)
speed range:	0...40.0 km/h (0...11.1 m/s) (0...24.8 mph) special speed up to 45 km/h (27.9 mph) on request.
acceleration:	7 levels (3...131 sec. from 0 to max. speed) from 0.085... 3.704 m/sec² programmable via para control; also for deceleration (for manual or program mode)
elevation:	-25...+25 % (-14...+14.0°) adjustable electr., resolution 0.1 % (-25 %...+25 % when using reverse belt rotation)
running direction:	switch for reversing running belt direction, running belt must be adjusted for reverse belt rotation. max. permissible speed without a safety-harness with fall-stop prevention system is 5 km/h.
motor system:	4.3 kW (5.8 HP) 3-phase A.C. motor (maintenance free and brushless, 20 years warranty on main drive motor)
power transmission:	frequency inverter, poly-V-belt, very quiet operation
safety: CE 0123	CE0123; directive 93/42/EEC + 2007/47/EC; MDD; machinery directive 2006/42/EC; EN 60601-1; EN 60601-1-1; EN 60601-1-2 (EMC approved); EN 60601-1-4; EN 60601-1-6; EN 62304; EN 957-1; EN 957-6; EN ISO 14971, ISO 9001; EN ISO 13485; emergency-off switch (mains off), potential equalisation bolt, transformer for potential-isolation from the mains
degree of protection:	class I ⏚ / type B 🧍 / IP 20
classification:	active diagnostic device and active therapeutic device, medical device risk class IIb (MDD) / S, I, A (EN 957)
leakage current:	0.25 mA
ambient condition:	+10...+40 °C (-30...+50 °C on request) 30...70 % humidity (up to 100 % on request) 700...1060 hPa barometric pressure 3000 m (~10000 ft) max. altitude without pressurisation
data (resolutions):	6 LCD displays, 4 LEDs for operation modes, 20 LEDs for display of units & profile no, steps, etc. speed (0.1 km/h or m/sec or m/min or mph), time (00:00) in hours, minutes & seconds, elevation (0.1% or degrees) distance (1 meter...999.9 km or miles), METS (1 MET) program step/number, energy (1 kJ/kcal), fitness index (1) power (1 Watt), heart rate (1 bpm / beat per minute)
heart rate monitoring:	POLAR WIND WearLink® wireless system, coded transmission range 10 m (32.81 ft) approx. ECG-accurate measurement; automatic control of speed and elevation according to programmed target heart rate („cardio mode“)
digital interface:	2 x RS 232 com1/com2 with 115200/9600 bps: incl.PC-protocol, h/p/cosmos coscom® & printer protocol for serial printer, option at extra charge: USB - RS 232 converter com3 with baudrate 115.200 bps
programs:	42 programs / profiles - 6 exercise profiles (scalable, 756 variations) - 28 test profiles (UKK 2 km Walktest, Bruce, Graded Test, Naughton, Ellestad, Gardner, Ramp, Conconi etc.) - 8 free definable programs with 40 program steps
free PC software:	h/p/cosmos para control® for display & remote control, h/p/cosmos para graphics® for recording & visualisation, inclusive 2 x RS 232 interface cable 1 x 5 m (16 ft 4.85“), 1 x 10 m (32 ft 9.70“)
software (at extra charge):	h/p/cosmos para analysis® & h/p/cosmos para motion®. PC software for monitoring, recording & motion analysis.
free accessories:	user manual, 2 bottle holders and 10 h/p/cosmos 0.5 l drinking bottles, service box incl. special oil, 5 m (16 ft 4.85“) potential equalisation cable
colour of frame:	grey aluminium RAL 9007 (powder coated); other colours on request.
handrails:	steel tube handrails 60 mm (2.36“) diameter on both sides, front-handrail crossbar (removable) 36 mm (1.42“) diameter, optional other handrail designs at extra charge.
voltage supply:	400 Volt AC 3~/N/PE 50/60 Hz 15A fuse breaker, dedicated line, special voltage supply available on request.
size of frame:	L: 250 cm (98.42“) B: 105 cm (41.34“) H: 145 cm (57.08“)
net weight:	approx. 440 kg (968 lbs)
gross weight:	approx. 590...640 kg (1298...1408 lbs)

Optionally available at extra charge: Special frame colours, other handrail designs, special specifications, special voltage supply, special deck sizes and accessories. Weight and package specifications can deviate according to options, accessories and packing.

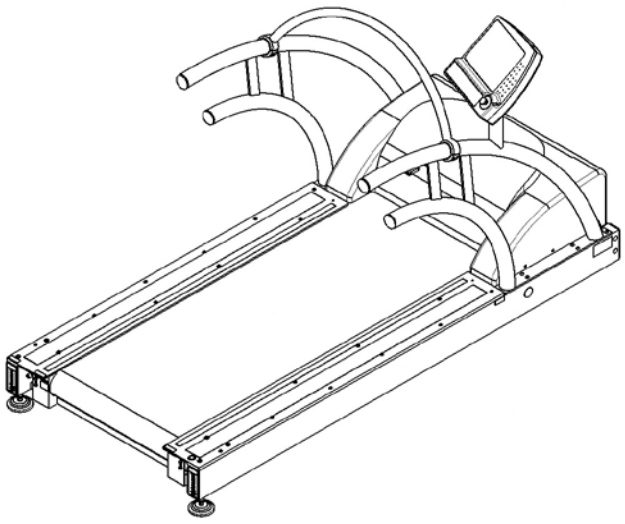
E&OE. Subject to alterations without prior notice.

Performance limitations:
Please consider the natural and physical performance limitations of the single phase 230 volt voltage power supply. The single phase 230 volt voltage power supply is sufficient up to normal fitness performance diagnostics, but is not sufficient for all special high performance applications (uphill/downhill, speed running, controlled jump-ons, sidesteps, heavy subjects at higher speed etc.). 3-phase running machine models
with 3x400 volts power supply (for example model pulsar® 3p, venus® or saturn®) are recommended for high performance applications.

Warning!
Installation, commissioning, instruction and maintenance only to be conducted by h/p/cosmos trained and authorised personnel. For running surfaces with L:200 x W:75cm or bigger, special applications, at higher speeds, for subjects with higher risk of falling, where a fall would lead to unacceptable risks (e.g. invasive probes during exercise or recent hip replacement), or if there is not enough safety space behind the treadmill, a fall prevention system (e.g. safety arch with harness & chest belt) is obligatory.

Keep min. safety space of L: 2 m (78.74“) x W: 1 m (39.37“) or the width of the treadmill (if the treadmill is wider) behind treadmills!

No children on or near to treadmills.



sprint trainin

quicker through over-frequency training and tensile resist

sprint training
details & videos

tance training

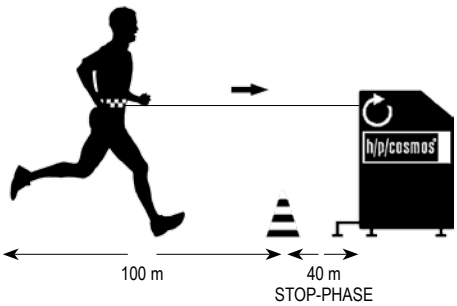
sprint training

sprint training

- quicker with over-frequency training through precisely controlled tensile support
- more explosive through tensile resistance training with variable resistance
- continual or variable sprinting sets over 100 meters
- ideal implementation through easy transport

sprint train

quicker through over-frequency training and tensile resis



- **over-frequency training on a tartan track or grass – but how?**
- **tensile resistance and tensile support training with constant load over 100 meters?**
- **controlled and variable loads during sprints?**
- **constant loads under variable speeds?**

quicker through over-frequency training

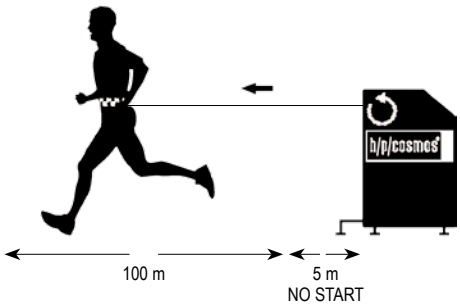
If you want to be fast you must train your speed. And if you want to sprint faster you need to train at higher speeds. Although that sounds simple it is difficult to implement in practice. Downhill running can‘t achieve theses goals due to the changed biomechanics and is of course not portable and not variably adjustable. Pulling ropes and bungees have been used for many years but they cannot offer measurable and constant tensile support over distances of up to 100 meters.

Exactly this problem is solved by the h/p/cosmos comet® 3p.

It has been developed specifically for sprint training with over-frequency. The special feature is the constant, accurate and electronically adjustable tensile support given to the athlete no matter how fast or far away he is. During the start phase especially with lower tensile support, an elastic rope connection is necessary and helps to keep the 100 m long and thin rope tight in the acceleration phase.

As a result the tensile support can be correctly adjusted for every athlete in every training phase by means of the potentiometer. The level of tensile support can be adjusted by the coach during the sprint with the potentiometer so that different phases can be accented. The 160 m long rope allows 100 m sprints with enough safety margin for the slow down phase at the end of the sprint. An integrated logic control prevents accidental shut down at full load and is an additional safety feature together with the emergency shut down switch. The h/p/cosmos comet® 3p is a must for every SpeedLab®.

tance training



more explosive through tensile resistance training

For tensile resistance training there are a variety of training resources: dragging car tyres, weight plated or even small parachutes. However, as with tensile support, there is also a problem here: the tensile resistance is not constant and cannot be adjusted and many times the resistance can also result in an unpleasant jerk.

improvement of the individual maximum speed

One of the major advantages of the h/p/cosmos comet® sprint trainer is, that the tensile resistance and or support is independent from the speed or running direction and can be adjusted easily with the electronic potentiometer.

This is possible due to a very dynamic and powerful servo drive. Even the very fast changing and „pulsating“ load situation during running movement require a fast and automatic adaption of the load during the ground contact due to the electronic regulation.

In contrast to a sledge wich is pulled over the ground, the comet® does not know any kind of „jerking“ of the load.

The runner determines the speed and direction, not the equipment.

With up to 30 kg (294 Newton) tensile resistance the equipment can also be used effectively for top athletes. Higher levels of tensile resistance are available on request of up to 100 kg (980 N). The rope itself is approved for loads up to max. 100 kg.

Additionally changes to the tensile support (rope pulling the runner) and tensile resistance (runner pulls the rope) can be made manually.

The comet® combines well established training methodologies with sophisticated electronic equipment which is easily adjustable and offers reproducible results.

It opens the door to new methods and dimensions in the development of neuromuscular coordinative training.

recommended configuration **sprint training** h/p/cosmos comet® 3p

pos.	qty.	order number	product description
1.	1	cos30015va02	**sprint trainer h/p/cosmos comet® 3p**
2.	5	cos14665-01	waist belt, size S (colour code red, for waist circumference 650 ... 950 mm) for h/p/cosmos comet
3.	5	cos12571-01	waist belt, size M (colour code blue, for waist circumference 850 ... 1050 mm) for h/p/cosmos comet
4.	5	cos14666-01	waist belt, size L (colour code yellow, for waist circumference 1000 ... 1300 mm) for h/p/cosmos comet
5.	2	cos12518	spare rope 180m for sprint trainer h/p/cosmos comet®
6.	1	cos11376	packing comet on pallet + bubble wrap, device fully assembled
7.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
8.	1	cos10194	installation, commissioning and instruction through authorised and trained personnel
9.	1	cos101341	1 full day workshop treadmill applications in speed & agility
			total price net, excluding VAT, excluding custom duties
			VAT (19 % in Germany, other VAT and/or custom duties may apply in other countries)
			system price h/p/cosmos solution for sprint training: please ask your dealer for a quotation

specifications h/p/cosmos® comet 3p

sprint trainer:	h/p/cosmos® comet 3p
order number:	cos30015va02
applications:	electronic machine for sprint training with traction resistance or traction support (overspeed). The athlete is running on the 100 meter track, is either resisted or pulled
speed range:	0 ... 53 km/h (0 ... 14.72 m/s) (0 ... 32.93 mph) adjustable from 0 ... 100% scale on the potentiometer
traction force / traction resistance :	0 ... 294 Newton (0 ... 30 kg), adjustable from 0 ... 100% analogue adjustment by means of the potentiometer (special versions with more traction force available on request)
drive and break system:	2.0 kW AC servo-motor
length of rope:	approx. 160 m (525 ft)
diameter of rope:	1.5 mm (0.06“) load-carrying capacity of the rope (not the drive motor): max. 70 kg (686 N)
safety features: CE	- emergency-STOP switch on the control panel of the motor - switch on logic, the speed regulator can only be activated at zero power (0%) and if the stabiliser is pulled out. - switch off if the rope breaks - switch off by reaching the close danger area 5m in front of the device.
product on request:	- digital adjustment - higher traction resistance
accessories:	- 1 waist belt size (M) - 3 x cones for marking distance - adapter rope (rubber) for max. 10 kg (98.07 N) traction force
leakage current:	0.4 mA
colour of frame:	grey aluminium RAL 9007 (powder coated)
voltage supply:	400 Volt AC 3~/N/PE 50/60 Hz 16 A fuse breaker, dedicated line, special voltage supply available on request
dimensions:	L: 75 cm (29.53“) B: 108 cm (42.52“) H: 84 cm (33.07“)
size of packing:	L: 80 cm (31.50“) B: 120 cm (47.24“) H: 115 cm (45.28“)
net weight:	approx. 184 kg (404 lbs)
gross weight:	approx. 284 ... 300 kg (625 ... 660 lbs)

The „traction rope“ is an expendable item and can be easily damaged by inappropriate use. There is no warranty on the traction rope.
Further details & optional equipment on request. E & OE. Subject to technical alterations without prior notice. Weight and package specifications can deviate according to options, accessories and packing.

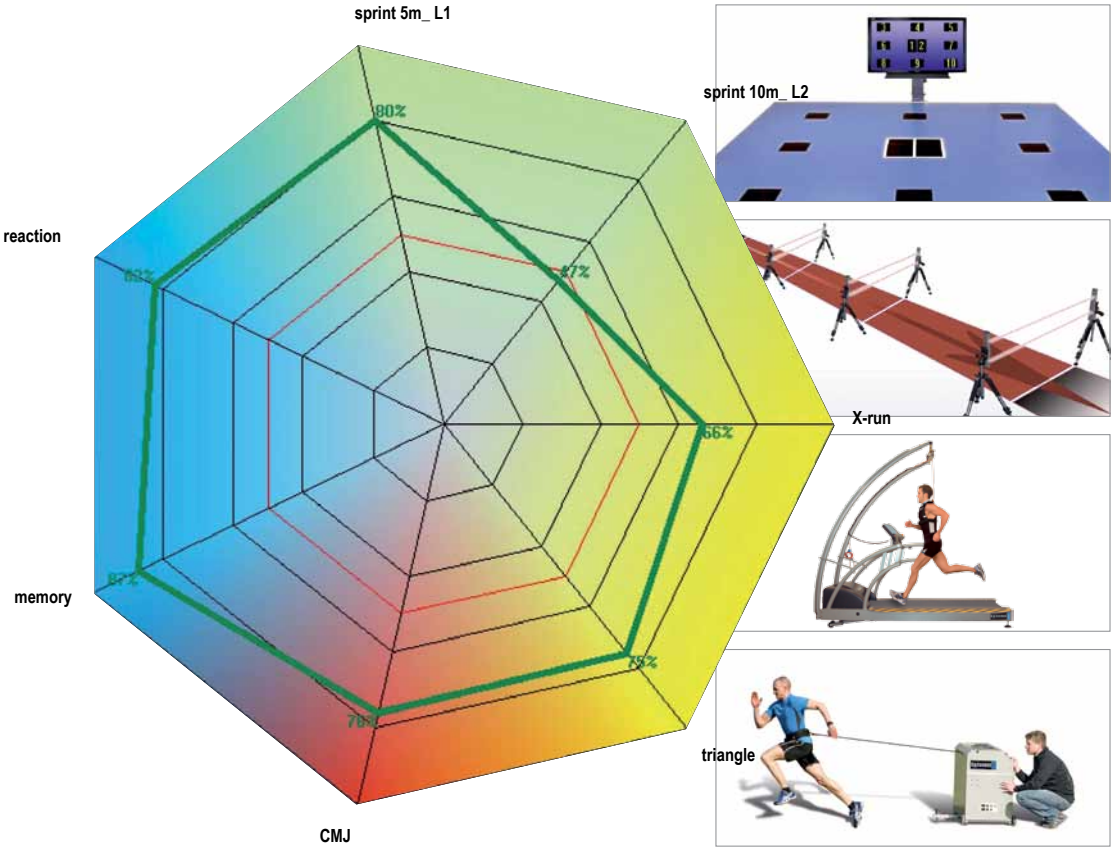
Performance limitations:
Please consider the natural and physical performance limitations of the single phase 230 volt voltage power supply. The single phase 230 volt voltage power supply is sufficient up to normal fitness performance training, but is not sufficient for all special high performance applications (heavy subjects at higher speed etc.).
Only the h/p/cosmos comet® 3p model with 3-phase power supply can provide sufficient performance for almost all applications in professional sports. The standard power supply of single phase 220 - 240 V is not sufficient for all applications and therefore is not recommended. Single phase versions are avialable for limited performance and simple use.

Warning!
Installation, commissioning, instruction and maintenance only to be conducted by h/p/cosmos trained and authorised personnel. For safety purpose a marking of the slow down zone 40 m and stop zone 5 m before the machine is obligatory.

No children connected or near to sprint trainers.

speed lab®

new methodologies in speed and agility training



speed lab®

speed lab®

- new methodology for talent identification combined with motivating training plans
- measuring and improving of game speed, agility, first step explosiveness and jumping skills, direction changes and cognitive skills
- appropriate intensity – low extent of training
- easy usage, clear data and evaluations, actual speed check, long term studies, group comparison

improve your game speed

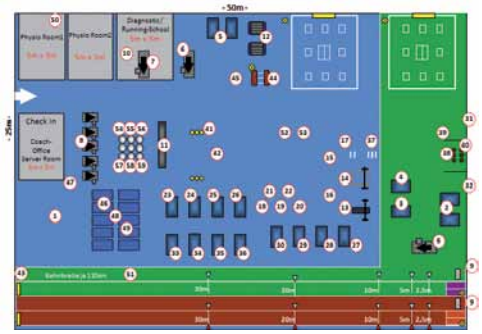
SpeedLab® methodology and concept

SpeedLab® is a new innovative high-tech concept that is focused on competition for motivated athletes and coaches, a modern athletic training system specialised in variable speed training and healthy workout.

In contrast to many other measurement-technologies most SpeedLab® modules are compatible with each other. The technology is based on sportscientific methodology. SpeedLab® is not just a highly modern measurement system. Equipped with high level training apparatus and the SpeedLab® training methods, the SpeedLab® technology can be the central element of a high end sports complex for modern athletes and coaches.

Through RFID-wristbands, tablet-PC's and a database, SpeedLab delivers short and long term analysis possibilities, the development potential from youths to professionals is demonstrativly applicable at all levels. When fractions of seconds decide, the outcome of competitions, speed cannot be left to chance!

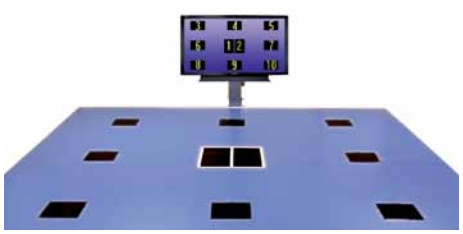
SpeedLab® integrates testing- and analysis methodologies, training programs, know-how, software and capital equipment from experts in this field and from specialised companies such as h/p/cosmos®, GlobalSpeed® by Frank Eppelmann, Running School® by Mike Antoniades and the functional training expert Lamar Lowery. SpeedLab® helps to identify the talents in your region and supports motivation to trainers and athletes for reaching world class level.



possible layout of sports facility with equipment for SpeedLab® methodology.
many different sizes and configurations are possible depending on the available facility space and individual targets

basics and modules

- technology of SpeedCourt®, SpeedTrack®, SpeedPlate® powered by GlobalSpeed®
- SpeedLab® software with test editor, data capturing and database
- tablet-PC and RFID-wristbands for ergomonic and fast training methodology of big groups
- flatscreens at each station for immediate feedback of results
- h/p/cosmos pulsar® 3p high performance running machines, h/p/cosmos quasar® treadmills
- h/p/cosmos comet® 3p sprint trainer, h/p/cosmos saturn® running machine for spike shoes
- h/p/cosmos pulsar® 3p including zebris biomechanics module and motion analysis
- h/p/cosmos discovery® ladder ergometers, indoor cycles for endurance training
- h/p/cosmos airwalk® se 135 body weight support and h/p/cosmos robowalk® expander
- h/p/cosmos para control®, para graphics®, para motion® and para analysis® software modules
- functional training equipment and training equipment for power and explosiveness
- the SpeedLab® Running School® methodology by Mike Antoniades with option for franchise
- the SpeedLab® functional training methodology powered by Lamar Lowery
- facility planning and consulting, education, training, workshops and support



SpeedLab® modules

SpeedCourt®

One extremely important element in development of the SpeedLab® is the SpeedCourt® module. SpeedCourt® is an interactive training and sports concept. It uses contact mats, a big display screen and sophisticated software with visual stimulation, innovative training and test programs with data management and a clear reporting and performance visualisation tool.

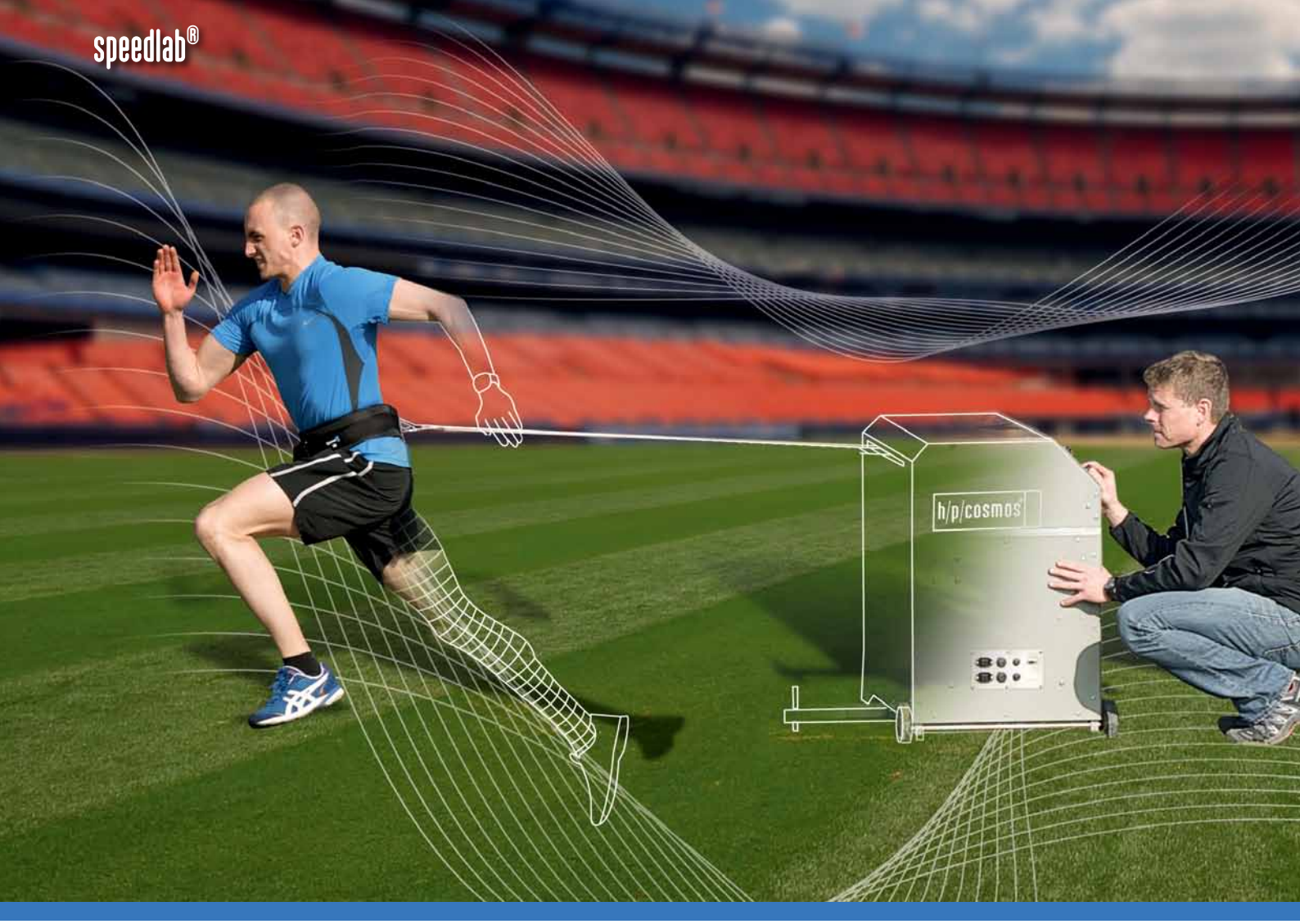
Through its unique variability it provides competition-like and individual training as well as accurate performance diagnostics. With the revolutionary concept of SpeedCourt® you can test and practice explosive acceleration, dynamic direction changes, coordination and cognition in ways unknown so far.

The SpeedLab® software is user friendly and enables the user to quickly edit paths.

Sports specific – position specific – impact controlled.

The integrated database functionality is an essential tool for modern coaches and therapists.

- sophisticated measurement + training
- game speed / agility / cognition / tappings / jumps / reactions
- permanent installation on 7m x 7m or mobile solutions
- standard of 12 contact plates
- 1 RFID-reader incl. bus-system for simple operation of database & with big training groups
- connectivity with SpeedLab® professional license package software & server
- completely configured Windows® computer in English and big monitor
- defined and open programs
- results immediately and clearly on screen
- use with individuals, groups, with football, medicine ball, etc.



SpeedTrack®

SpeedTrack® is a multi-functional laser-measurement system. It allows to acquire time from linear measurement sprints, shuttle runs and explosiveness.

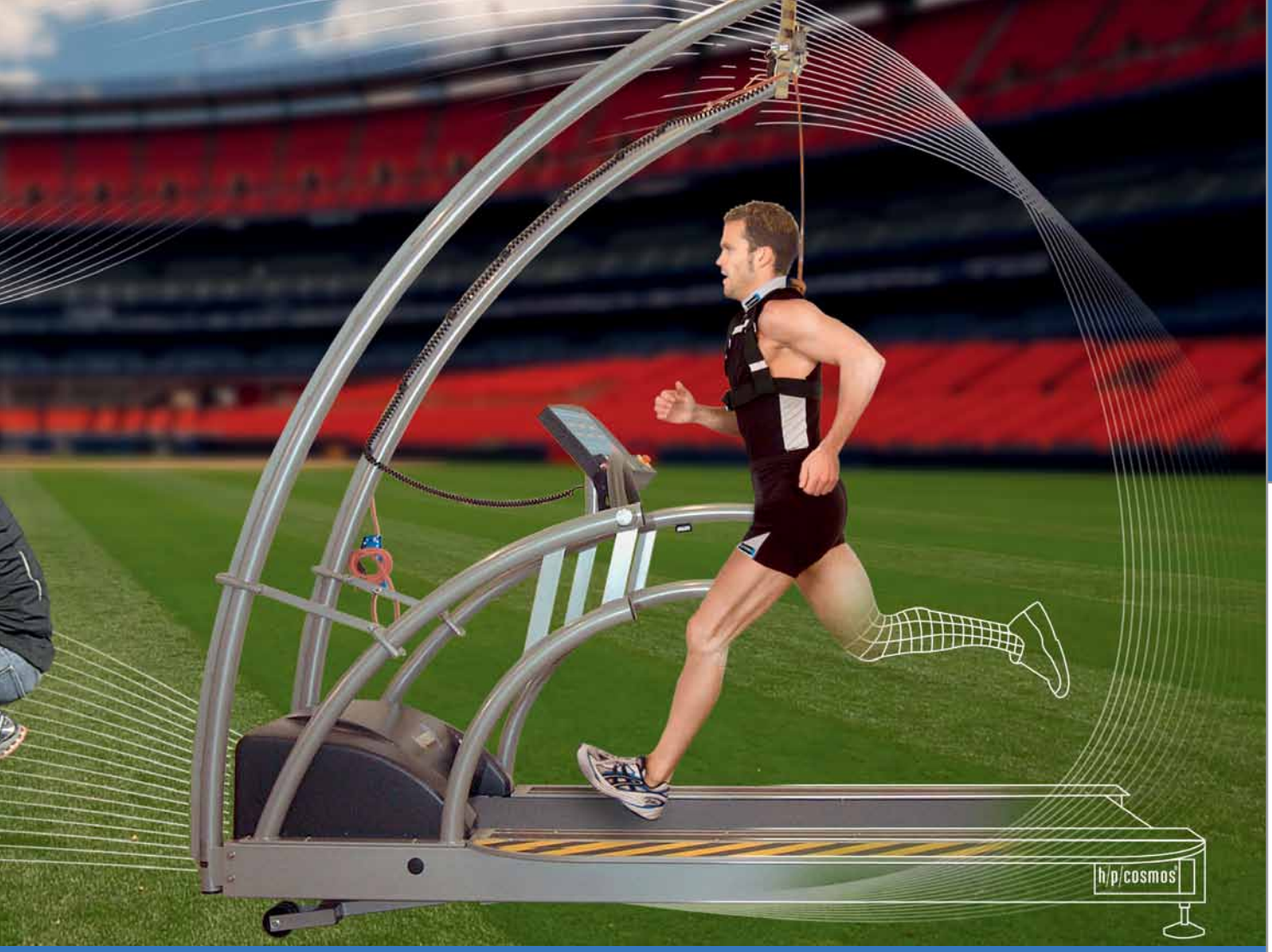
The starting plate provides an accurate and error-free start. It also provides a measure of competitive sprinting situations such as lateral movements and jumps. Standard tests such as tapping, reaction tests and measurements are possible with the speed track. The light barriers are made of double reflection lasers.

the system contains

- 5 laser barriers with 2 sensors each, mobile rack adjustable in height
- start measuring system for sprint start, simple, flexible and error free operation
- function for measurement of first 2 steps
- 1 RFID-reader incl. bus-system for simple operation of database and with big training groups
- connectivity with SpeedLab® professional license package software & server
- completely configured Windows® computer in English and big monitor
- cables and adapters
- connection of start measuring system to laser barrier 1, laser barrier 2, etc.

features

- measuring 1/1000-sec. and km/h
- distances free selectable, 5 ... 400 m (with optional extension cables)
- shuttle-runs
- results immediately + clearly



SpeedPlate®

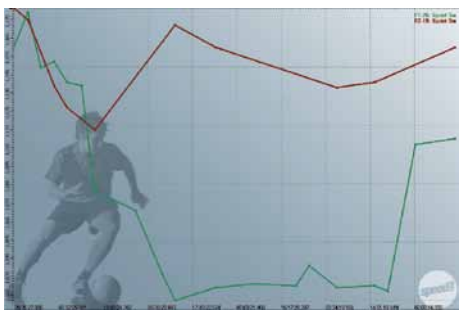
Measuring and training contact plate for objective measurement and evaluation of achievement-oriented athlete's speed and explosive sprint strength relevant parameters. The SpeedPlate® allows measurements of drop jumps, tappings and a number of other applications. One key to success is the connectivity to SpeedLab® professional license package software & server and the RFID login method for simple and safe operation also with big training groups. Results are immediately displayed on a screen.

h/p/cosmos pulsar® 3p

The h/p/cosmos pulsar® 3p high performance treadmill with 3-phase power supply was designed for professional running and training applications like overspeed, coordination and functional training and also for high performance testing. A special wide and long running surface in combination with a comfortable and extremely durable running belt provides the environment for running and high speed applications. Furthermore the h/p/cosmos safety arch gives the athletes the necessary safety to reach their limits without fear of injury through falling. Special design features involve extra wide footboard with marking and special siderails with additional handlegrip for jump-on and jump-off at very high speed, making up for a perfect speed training treadmill. Running surface 190 x 65 cm, speed 0 ... 40 km/h, elevation -25 ... +25 %, drive motor 4.3 kW with high-performance 3-phase power supply, interface ports & para control® software.

h/p/cosmos comet® 3p

One of the great benefits of the h/p/cosmos comet® sprint trainer is, that the traction resistance can be adjusted electronically and is independent from the speed of the subject and even from the running direction of the subject. The subject dictates the speed and the running direction, not the device! Changes to the traction support (rope pulls the subject toward the machine) and changes of the traction resistance (subject running away from the machine and subject pulls the rope) can be made at any time. The comet® combines well established training methodologies with sophisticated electronic equipment which is easily adjustable and offers reproducible results.



speed: evaluation example 5m sprint and start explosiveness

SpeedLab® benefits

- measuring and improving of:
  - reaction speed, first step explosiveness and jumping skills
  - turns, change of directions
  - cognitive skills
  - nerve fatigue
- modern talent diagnostics and technique learning at an early stage
- training like competition with extremely high motivation
- appropriate intensity – low extent of training
- injury prevention based on precise movement and training control
- early re-integration after injuries (before - after comparison)
- easy usage, clear data and evaluations, reproducible results
- actual speed check, long term studies, group comparison
- motivation through immediate feedback, highscore and „playful“ athletic training
- investment in own infrastructure, players and systematic future development
- sophisticated methodology and high reliability of technology and service

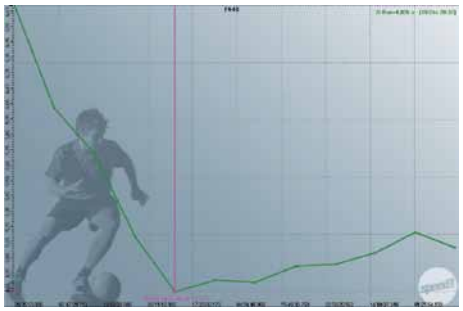
results and success stories:

13 % improvement (60 cm) on 5 m - sprint in 3 month

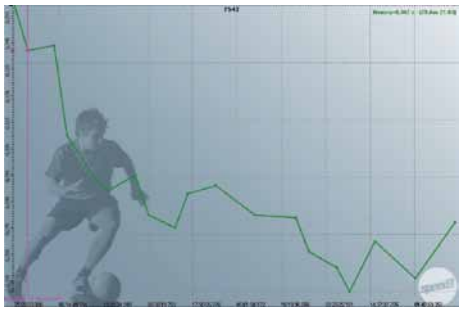
player 1 (green): soccer professional, 26 years old, regular SpeedLab testing and training period over 1 year, improvement from 1.179 sec. to 1.022 sec.

difference of 0.157 sec. = approx. 60 cm gain of distance in a sprint duel of only 5 m. interruption of training process after 4 months.

player 2 (red): soccer professional, 19 years old, no regular SpeedLab testing and training process with minimal and inconstant improvement.



agility: evaluation example „X-run“
(defined change of direction sprints on the SpeedCourt®)



quickness: evaluation example „speed-memory“ (open and cognitive change of direction sprints on the SpeedCourt®)

Ask for a comprehensive documentation of further motivating results by sending an email to sports&medical@h-p-cosmos.com

28 % improvement in COD (change of direction)- sprint in 3 month

player: soccer junior, 16 years old, regular SpeedLab® testing and training period over 1 year, improvement of total time for the „X-sprint“ from 6.684 sec. to 4.826 sec. (difference: 1.858 sec. = 28 %) within 4 months of pre-season.

30 % improvement in cognitive COD - sprint in 3 month

player: soccer youth player, 12 years old, regular SpeedLab® testing and training period over 1 year, reduction of standing time during change of direction from 0.359 sec. to 0.251 sec. (difference: 0.108 sec. = 30 %)

11 % improvement (5 cm) in CM (counter-movement)- jump in 3 month

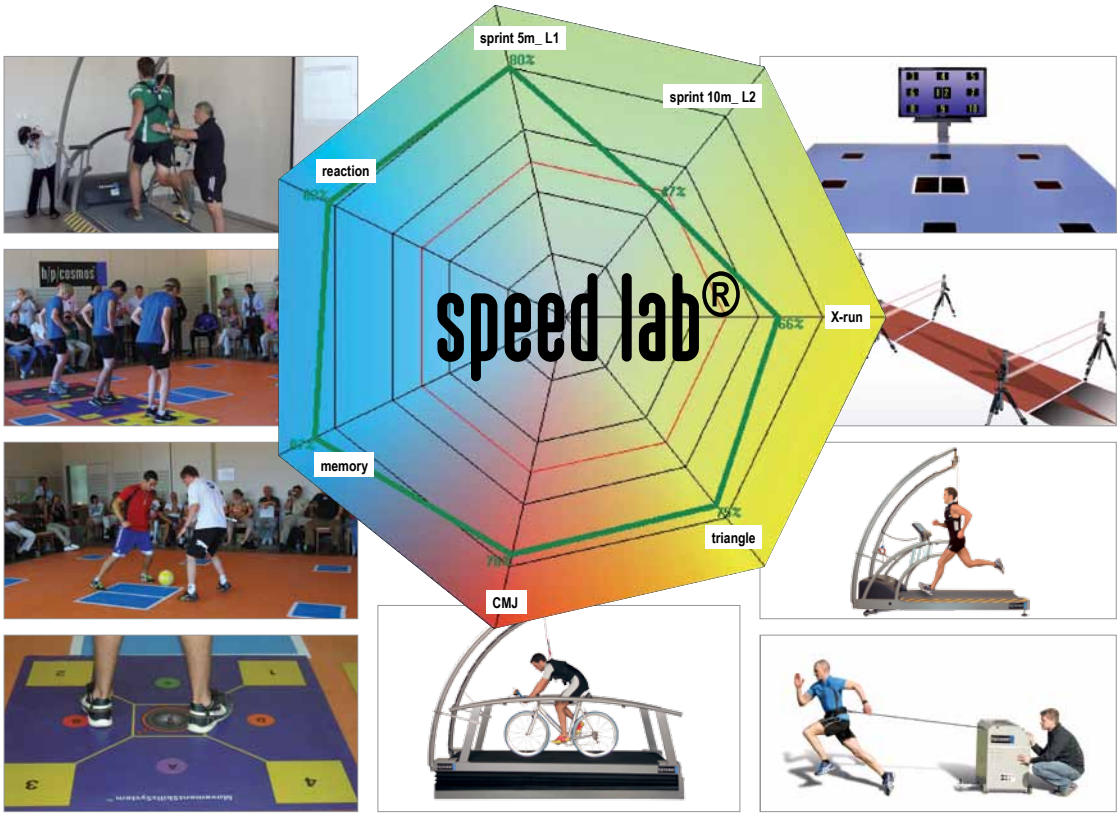
player: handball professional, 22 years old, regular SpeedLab® testing and training period over 1 year, improvement from 40 cm jumping height to 45 cm. Interruption of training process after 5 month (injury). Fast reintegration during and after rehab.

summary and conclusion

With the new SpeedLab® testing and training methodology you offer a motivating concept which is extremely rich in variety and delivers excellent results. It brings new stimulation, attractive impulses and great fun into daily work of athletes, coaches and sports scientists.

And it is universally known, that motivated people stay longer in the team.

The success of a ball sports team is not mainly based on spending millions for purchasing expensive famous players.
It is decisive to identify young talents, support them and invest in modern and effective methodologies for the motivation, success and future of the entire team.



recommended configuration **SpeedLab®** (alternative configurations for smaller speed labs available on request)

pos.	qty.	order number	product description
1.	1	cos101613va01	**SpeedLab® methodology education package for performance powered by The Running School® by Mike Antoniades** - training and coaching manual - training protocols on biomechanical analysis BMA, movement screen, speed testing (straight line & sports speed), neuro-muscular coordination, turning ability analysis, coaching methodology, what to observe, what to change, how to change, how to improve, how to develop speed - session plans on running technique, straight line speed, sport speed, power and explosiveness, templates for BMA, movement screen, re-testing, notes on session plans, video instruction
2.	1	cos101613va02	**SpeedLab® methodology education package for rehabilitation powered by The Running School® by Mike Antoniades** - movement reeductation after injury or surgery to recover faster - the five phases of rehabilitation - movement re-patterning protocols, neuro-motor re-education, neuromuscular coordination, proprioception, development, functional biomechanics, functional strength, walking re-education, running re-education, return to sport for athletes, dynamic movement
3.	5	cos101613va03	**SpeedLab® methodology support package per year powered by The Running School® by Mike Antoniades** the support contract will start after the first year and includes follow up support for trainers & operators. details see in detailed quotation
4.	1	cos101613va04	**SpeedLab® methodology education package for functional training powered by Lamar Lowery** includes initial education program, support literature and vidoes for functional training. details see in detailed quotation
5.	5	cos101613va05	**SpeedLab® methodology support package for functional training powered by Lamar Lowery** the support contract will start after the first year and includes follow up support for trainers & operators. details see in detailed quotation
6.	1	cos101613va06	**SpeedLab® development consulting starter package for initial installation** includes consultation, drawings, drafts for layouts, planning, development of the best configuration. details see in detailed quotation
7.	1	cos101603pro	**SpeedLab® professional unlimited license package with software and server** - 1 computer server with Windows® OS in English - SpeedLab® professional software license in English including database function - license for unlimited (max. 10,000) number of users (subjects) - 1 display monitor 22" - 1 interface with W-LAN and bus-system - 1 tablet-PC for mobile operation - 1 RFID reader, 150 wrist bands with RFID sensor (alternative 1: [cos101603bas] SpeedLab® basic 50 with license for max. 50 users) (alternative 2: [cos101603sta] SpeedLab® standard 100 with license for max. 100 users)
8.	100	cos101623	**additional wrist bands with RFID sensor for SpeedLab®**

pos.	qty.	order number	product description
9.	1	cos101407va02	**SpeedCourt® 7 x 7 Q12 - for mobile installation** multifunctional measurement and training court for speed, power, agility and quickness measuring parameters: - various reactions - tapping frequencies - contact times - counter movement jump - squat jump - high jump - quick jump - defined directional change tests which can be programmed by the coach - free cognitive deciding - acting-speed - directional change training-exercises like „speed-memory“ - countless variations, which can be programmed by the coach - precise measuring to thousandth of a second, speed in km/h SpeedCourt® contains: - 49 mobile parts, interlocking system on edges - 8 active fields with sensors, 1 active field with 4 sensor zones and 40 passive fields - aluminium box for transportation of mats - surface of mats by Mondo S.A. - sports flooring for the size of the SpeedCourt® in case the SpeedCourt® is incorporated in the floor (option at extra charge) and the floor space area outside the SpeedCourt® shall be built with the same surface mats, additional floor elements need to be installed at extra charge supplier: Mondo S.A. sport floor - 1 RFID-reader incl. bus-system for simple operation of database - connectivity with SpeedLab® professional license package software & server - completely configured Windows® computer in English - professional flat screen approx. 37“/94 cm to 46“/116 cm with wall mount
10.	1	cos101602	**monitor stand/trolley mobile - for SpeedCourt® flat screen for mobile installation** including wheels, capacity up to max. 50 kg (110 lbs) for monitor size up to 46“/116 cm
11.	1	cos101602	**SpeedTrack® T5 - for mobile installation** multifunctional laser sensor measurement system for start explosiveness, cyclic sprinting and shuttle-runs - there are 5 sections / distances selectable for the light barriers, e.g. 2.5 m, 5 m, 10 m, 20 m, 30 m - SpeedTrack® calculates and analyses the times and mechanics of all the phases of sprints and shuttle runs - precise measuring to thousandth of a second, speed in km/h - start measuring system - function for measurement of first 2 steps - 5 laser barriers with 2 sensors each, mobile rack adjustable in height - 1 RFID-reader incl. bus-system for simple operation of database - connectivity with SpeedLab® professional license package software & server - connection of start measuring system to laser barrier 1, laser barrier 2, etc. - completely configured Windows® computer in English and monitor (28“) for indication/display of results
12.	1	cos101604	**SpeedPlate®- for mobile installation** measuring and training contact plate for objective measurement and evaluation of achievement-oriented athletes speed and explosive sprint strength relevant parameters - SpeedPlate® basic contact plate - 1 RFID-reader incl. bus-system for simple operation of database - connectivity with SpeedLab® professional license package software & server - completely configured Windows® computer in English and monitor (28“) for indication/display of results
13.	2	cos1011622	**DMS dynamic movement skills - mat system** includes DMS methodology which can be found in the electronic training manual along with 12 complete training sessions and includes an instructional DVD to help guide you through. includes a pack of five DMS pro mats
14.	1	cos101605	**multi-function jumping platform** 4 to 6 band training system, on platform training with up to 6 bands & off-platform training with up to 2 bands. lower & upper body training capability with 2 adjustable multi-vector bands. no assembly required. unit comes with user's manual, training demo DVD
15.	1	cos101621	**power training equipment set** weight training equipment, resistance training equipment, dumbells, barbells, etc. according to the SpeedLab® concept. details see quote
16.	1	cos101625	**functional training equipment package** hurdles, cones, medicine balls, gymnastic balls, kettlebells, plyometric equipment, gymsticks, multitraining system, balance boards, balance trainers, training ropes, etc. according to the SpeedLab® concept. details see quote
17.	5	cos30003va16	**running machine h/p/cosmos quasar®** running surface 170 x 65 cm, speed 0 ... 25 km/h, elevation 0 ... 28 %, drive motor 3.3 kW, interface port com1 for PC or printer, incl. software h/p/cosmos para control® for remote control and supervision. these single phase powered treadmills are for warming up and for endurance training but not for athletic high performance applications, like the 3-phase powered pulsar® 3p models
18.	5	cos10170	safety arch with harness, fallstop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
19.	5	cos12769-01	USB - RS232 interface adapter
20.	5	cos10177	packing on pallet + cardboard hood, treadmill partially assembled, running surface 170 x 65 cm (safety arch)

pos.	qty.	order number	product description
21.	4	cos30004va04	**running machine h/p/cosmos pulsar® 3p** running surface 190 x 65 cm, speed 0 ... 40 km/h, elevation -25 ... +25 %, drive motor 4.3 kW with high-performance 3-phase power supply, 2 interface ports com1 / com2 for PC-, EMG, ECG, ergospirometry-, blood pressure monitor system or printer - compatible to many systems worldwide, incl. PC software h/p/cosmos para graphics® for device control and visualisation
22.	4	cos101277	„science port“ speed output with raw speed data excluding the “smoothing algorithms”
23.	4	cos16487	3rd interface RS 232 com3 with coscom v3, baudrate 115.200 bps
24.	4	cos10159	special speed 0 ... 45 km/h / 0 ... 28 mph / 0 ... 12.5 m/s
25.	4	cos10170	safety arch with harness, fallstop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
26.	4	cos101406	additional fixation / re-inforcement for safety arch
27.	20	cos14903-02-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105 ... 135 cm) for safety arch harness
28.	20	cos14903-02-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch harness
29.	20	cos14903-02-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch harness
30.	4	cos14763-01	handrail left shortened (speed) 190/65
31.	4	cos14764	footboard left extrawide (speed) 190/65
32.	4	cos14168va02	running belt gait analysis 190/65
33.	2	cos14151	h/p/cosmos calibration board „frontal" for camera adjustment
34.	2	cos14152	h/p/cosmos calibration board „sagittal" for camera adjustment
35.	4	cos14239	camera- / spotlight-post „frontal", 150 cm, adjustable with scaling, incl. spotlight
36.	2	cos100743	ceiling light systems for motion analysis incl. conducting rail and 4 pieces 150 W CDM-TD
37.	4	cos14149	FireWire-cable-set for video cameras, 10 m, 6/6 pin, incl. 2 adapter 6/4
38.	2	cos14154	FireWire repeater 6/6
39.	4	cos14148-02	HDV camcorder
40.	2	cos16425	steel ruler, flexible, for contour-accurate marking on the skin
41.	2	cos14771	skin marker, water resistant, especially suited for eudermic marking
42.	2	cos15508v5pro	**software h/p/cosmos para motion® „professional“** for analysis and evaluation of the videos with up to 4 cameras, incl. database, treadmill control software, analysis schemata, individual report functions, etc.
43.	4	cos14970	**h/p/cosmos satellite PC med - medical PC** mini-tower according to IEC 60601-1, Windows® OS in English incl. 19“ LCD monitor, keyboard, mouse, DVD-ROM writer, FireWireCard, colour laser printer and PC-trolley
44.	6	cos10223	potential equalisation cable 5 meters / 16 ft 4.85“ (necessary in medical used rooms and patient environment)
45.	4	cos12769-01	USB - RS 232 interface adapter
46.	4	cos00097010035	interface cable RS 232, 10 m (32 ft 9.70“)
47.	12	cos60098010004	pre installation and configuration of satellite PC incl. software solutions at h/p/cosmos factory
48.	10	cos14825-01	**lactate test meter h/p/cosmos sirius®** mobile lactate test meter, measurement time 10 sec., storage of 250 results, measuring range 0.5 ... 25 mmol/l, automatic fill stop
49.	10	cos14827-01	lactate test strips h/p/cosmos sirius 72
50.	3	cos100668v4pro	**software h/p/cosmos para analysis® „professional"** - sports evaluation software with integrated database and training plan
51.	10	cos11657	starter kit consumables lactate
52.	20	cos100668v1lt	**software h/p/cosmos para analysis® lt** (recommended for trainers and athletets)
53.	1	cos101629	**FDM-THM-M Zebris gait analysis system for h/p/cosmos pulsar® 3p** with deck size 190/65 cm sensor area: 155 x 54.1 cm, 11264 sensors, sampling rate: 100 Hz, includes interface for combination with video module and includes software WinFDM for gait analysis and biomechanic parameters. it does not include the basic treadmill, which has to be ordered separately
54.	1	cos100384	**WinFDM-stance module,** software extension for load analysis during standing
55.	1	cos100385	**WinFDM-video module, option - SYNCCam**, extension for combination with video camera
56.	1	cos101062	**module - virtual training, software extension for WinFDM**, interactive treadmill training along a virtual forest path, includes an editor for adding obstacles of varying degrees of difficulty
57.	1	cos101626	additional monitor 116.8 cm (46“) for connection to PC. (optional mobile floor stand [cos101602] or wall mount [cos101627] is required)
58.	1	cos101602	monitor stand/trolley mobile - for flat screen for zebris module - virtual training including wheels, capacity up to max. 50 kg (110 lbs)
59.	4	cos10177	packing on pallet + cardboard hood, treadmill partially assembled, running surface 190 x 65 cm (safety arch)
60.	2	cos30017va01	**unweighting system h/p/cosmos airwalk 135 se** dynamic spring electronic unweighting system, subject weight: max. 135 kg (297 lbs), subject height: max. 200 cm (6` 6.72“), dynamic un-weighting range: 1 ... 75 kg (2.2 ... 165 lbs) (infinitely adjustable), footprint of unweighting system: (L x W): 214 x 159 cm
61.	10	cos10112	vest **XS**mall for h/p/cosmos airwalk, (colour code light blue) for waist size for children
62.	10	cos10095	vest **S**mall for h/p/cosmos airwalk, (colour code red) for waist size 55...80 cm (22...32“)
63.	10	cos10096	vest **M**edium for h/p/cosmos airwalk, (colour code blue) for waist size 81...112 cm (32...44“)
64.	10	cos10097	vest **L**arge for h/p/cosmos airwalk, (colour code yellow) for waist size 112...145 cm (44...57“)
65.	2	cos30022va02	**h/p/cosmos robowalk® expander F (front)**, for safety arch mount, incl. 4 ropes, forces & angles adjustable

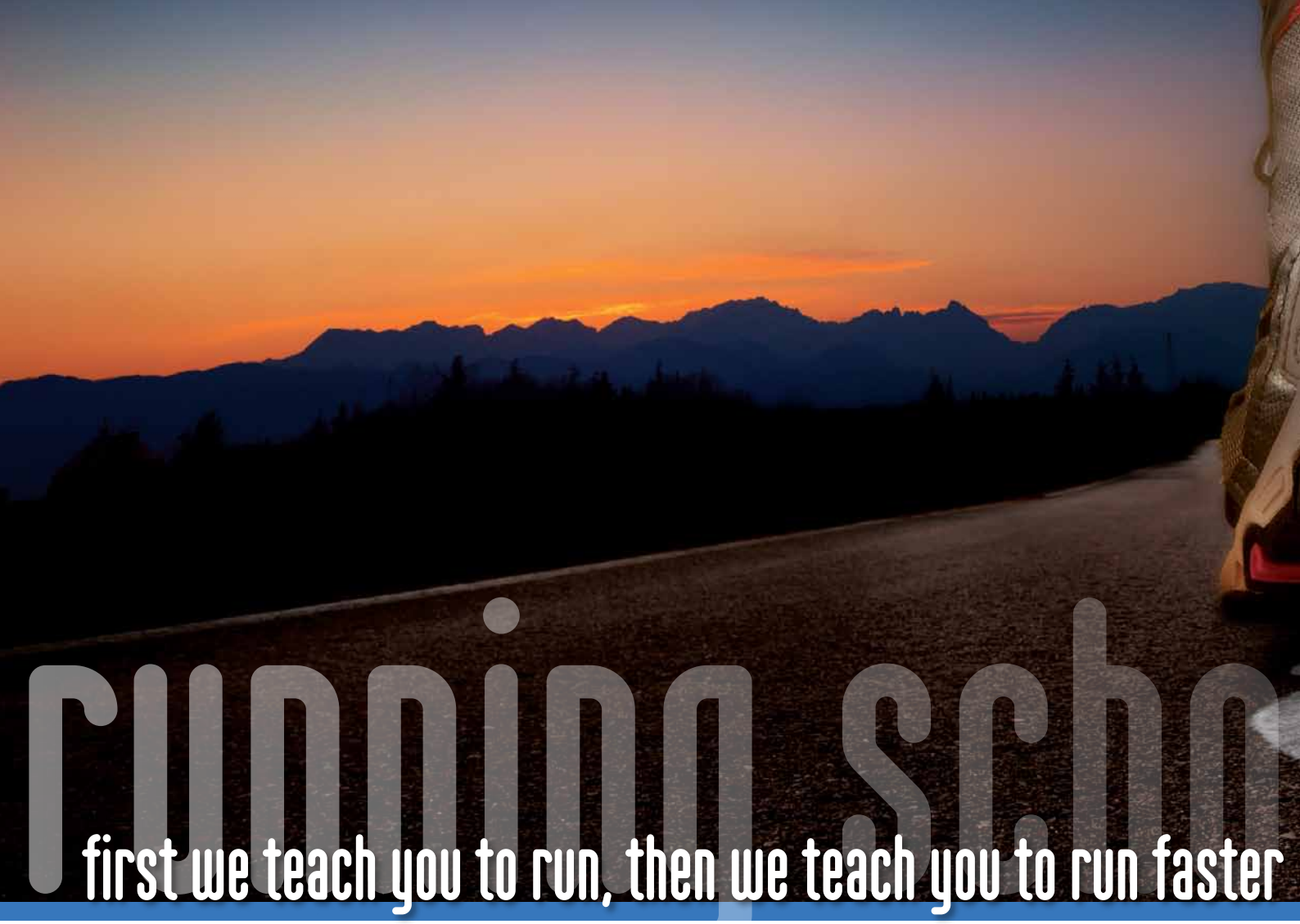
pos.	qty.	order number	product description
66.	2	cos30022va03	**h/p/cosmos robowalk® expander F (front)**, for airwalk 135 se mount, incl. 4 ropes, forces & angles adjustable
67.	4	cos30023va02	**h/p/cosmos robowalk® expander B (back),** incl. 4 ropes, forces & angles of forces adjustable
68.	20	cos101050-S	leg cuff thigh, size S (colour code red, for thigh circumference 250 ... 390 mm / 9.8“ ... 15.4“) for robowalk expander
69.	20	cos101050-M	leg cuff thigh, size M (colour code blue, for thigh circumference 360 ... 510 mm / 14.2“ ... 20.1“) for robowalk expander
70.	20	cos101050-L	leg cuff thigh, size L (colour code yellow, for thigh circumference 490 ... 750 mm / 19.3“ ... 29.5“) for robowalk expander
71.	20	cos101051	leg cuff shank, size XS (for ankle circumference 140 ... 270 mm / 5.5“ ... 10.6“) for robowalk expander
72.	2	cos100573va01	packing in wooden crate, system partially assembled, for airwalk se sea freight
73.	1	cos30012-01va03	**running machine h/p/cosmos saturn® 300/125r** running surface 300 x 125 cm, speed 0 ... 40 km/h, elevation -27 ... +27 %, drive motor 11 kW / 15 HP, special running surface for cycling and wheelchair, applications, external control unit, 2 interfaces com1 / com2 for PC-, EMG, ECG, ergospirometry-, blood-pressure monitor system or printer - compatible to many systems worldwide, incl. PC software h/p/cosmos para graphics® for control and visualisation
74.	1	cos101277	„science port“ speed output with raw speed data excluding the “smoothing algorithms”
75.	1	cos12473	re-inforced running belt made of thick rubber approx. 5mm thick, green, for ski-poles, spikes, bikes, with low rolling resistance
76.	1	cos100923	variable elevation speed (switch for changing the velocity of elevation amendment from slower to faster)
77.	1	cos00096110030	special speed 0 ... 80 km/h (49.71 mph / 22.22 m/sec)
78.	1	cos14192	handrails 2/3 detachable long / short / rolled - for perfect sagittal view during video analysis
79.	1	cos00096110031	wheelchair stabilizer for running deck lenght 300 cm
80.	1	cos100653b	wheelchair ramp venus/saturn
81.	1	cos10172	safety arch with harness, fall stop, chest belt + autom. running belt stop. CE mark for 200 kg (440 lbs)
82.	1	cos14903-02-L	chest belt system, size L (colour code yellow, for chest measurement approx. 105...135 cm) for safety arch
83.	1	cos14903-02-M	chest belt system, size M (colour code blue, for chest measurement approx. 85 ... 115 cm) for safety arch
84.	1	cos14903-02-S	chest belt system, size S (colour code red, for chest measurement approx. 65 ... 95 cm) for safety arch
85.	1	cos10670	spare rope for safety arch
86.	1	cos13476	DELL laptop computer (details on request)
87.	1	cos13320-01	monitor-/Laptop arm, movable, mounting at the external control unit
88.	1	cos15580-01	h/p/cosmos satellite print 4 CO - printer-set for direct documentation without PC, incl. color laser printer, RS232 converter with cable, printer rack
89.	1	cos00097010035	2nd interface cable RS 232, 10 m (32 ft 9.70“)
90.	1	cos12769-01	interface adapter USB / RS232
91.	1	cos10223	potential equalization cable, 5 m (required for medical systems)
92.	1	cos14097	packing in wooden crate, treadmill partially assembled, running surface 300 x 100 cm (safety arch)
93.	2	cos30015va02	**sprint trainer h/p/cosmos comet® 3p** 3-phase powered machine for high performance applications and stationary use, details see pages 54 - 59
94.	1	cos30015va01	**sprint trainer h/p/cosmos comet® 1p** single phase powered machine for portable applications in the field and with optional generator use
95.	3	cos12518	spare rope 180m for sprint trainer comet
96.	1	cos11376	packing comet on pallet + bubble wrap, device fully assembled
97.	1	cos60098010021	transport / shipping charge (please specify if truck, sea or air freight; for overseas sea shipment is recommended)
98.	5	cos30015va01	**ladder ergometer h/p/cosmos discovery®** endless ladder for climbing and athletic performance training applications: for sports and fitness purpose, not for medical use, WITH UserTerminal (6 Displays & Keyboard), MCU5. height of climb: 235 cm max. usable (productive), rung interval: 24.4 cm / 10 inch, rung width: 49.5 cm / 20 inch angle of gradient: 75°, permissible load: max. 140 kg (308 lbs) / min. 20 kg (44 lbs) speed range: 0.1 ... 40.0 m/min. resolution 0.1 m/min, acceleration: 7 levels (3 ... 131 sec. from 0 auf max.) brake system: 0.75 kW 3-phase A.C. motor, (maintenance free), power transmission: chain system
99.	2	cos14296	packing in wooden crate, device fully assembled
100.	5	cos101628	**indoor cycle,** adjustable resistance system, adjustable seat and handlebars
101.	1	cos10194	**installation, commissioning and instruction** through authorised and trained personnel
102.	5	cos101630	**maintenance contract for SpeedLab®** incl. annual safety inspections & firmware updates through authorised personnel
103.	2	cos14316	**1 full day practical workshop performance testing, performance diagnostics**, details in handling equipment & software
104.	2	cos14320	**1 full day practical workshop sports rehab**, details in handling equipment & software
105.	2	cos14318	**1 full day practical workshop gait- & motion analysis**, details in handling equipment & software
106.	2	cos101094	**1 full day practical workshop robowalk & functional training**, details in handling equipment & software
107.	4	cos101341	**1 full day practical workshop SpeedCourt®, SpeedTrack®, SpeedPlate®**, details in handling equipment & software
108.	1	cos60098010015	hotel / accomodation costs for the desired installation, training and workshop time
			system price h/p/cosmos® solution for SpeedLab® professional: please ask h/p/cosmos® and your dealer for a quotation

running scho
move better - run better - run faster!

running school®

running school®

- sport specific training
- multi directional speed training
- speed for elite runners
- triathlete running
- recreational runners



running school

first we teach you to run, then we teach you to run faster

the running school® concept

Most people have not been taught how to run; they assume it's something that comes naturally. But running is a skill and just like any other skill it can be learned. Although it seems the most natural thing in the world to do, many people don't know how to run efficiently to achieve their goal or challenge without getting injured. People use running to stay fit, for weight loss or to help them with their sport or challenge like running a marathon. Children in particular, because of the reduced time they have to play outside at a young age, have underdeveloped motor control skills - running, jumping, turning and sprinting.

The Running School® concept was created by Mike Antoniades, one of the UK's most innovative coaches, who is also the founder of Sport Dimensions. Mike is a highly respected performance & rehabilitation coach who has worked with thousands of athletes and professional sports teams over the last 30 years in the UK, Europe and the USA.

first we teach you how to run, then... we teach you how to run faster!

The Running School® training methodology teaches running technique and speed technique as a skill and movement re-education after injury or surgery. We work with youngsters, recreational and professional athletes of all sports with great results. We have developed protocols that teach and improve sport movement and rehabilitation protocols that help people recover better after injury or surgery.

The protocols we have developed guarantee results and improvement in running efficiency, running speed, quick feet, explosiveness, power and COD change of direction in a variety of sports. We have worked with many athletes from among others - English premiership football clubs, professional rugby teams, winter and summer Olympians, GB athletics, GB bobsleigh, and marathon runners, middle distance runners of all levels as well as youngsters with movement and agility issues.

as part of the franchise the running school® has education modules on

Recreational athletes, Running School for kids, elite speed development, multidirectional speed, DMS dynamic movement skills, walking & running re-education after injury or surgery and DMS rehab.

what do we offer?

- coaching of running technique to children from aged 6 to adults from beginners to elite athletes
- speed training and development of straight line speed through TRS treadmill based methodology
- multi-directional speed training and development of multi-directional speed
- coaching of correct walking techniques for seniors and those looking to return to full fitness
- development of training programmes for runners and athletes looking to develop their speed
- movement re-education after injury or surgery– rehabilitation, walking, running rehabilitation
- movement training for kids - a programme specifically tailored for younger children with movement difficulties such as dyspraxia. Includes: gait re-education and DMS.
- rehabilitation after injury or surgery – five phases of rehabilitation – protocols developed for upper body, back rehabilitation and lower limb rehabilitation

benefits of the running school®

- improved running technique
- helps in accelerated rehabilitation
- increased efficiency of running technique
- increased confidence and enjoyment
- decreased risk of injury associated with running
- kids movement & development
- better muscle balance and coordination
- increase in speed and explosiveness
- quick feet and change of direction
- analysis of movement and testing
- analysis & improvement of sport & game speed
- analysis & improvement of straight line speed
- ability to turn faster and increase agility

running school® package

- extensive coaching & training 8 days
- running school® website
- sales & marketing plan
- marketing material
- training & coaching manuals
- training programmes
- business pack
- on-going support
- first access to new modules
- excellent image and references

h/p/cosmos® is your specialist!

h/p/cosmos® is also specialised in the installation in difficult circumstances for example with a crane or as a dismantled unit through a narrow stairwell.

Moreover even pit installations and platforms around the treadmill are available on request. The h/p/cosmos service team or our trained and authorised partners provide our customers with preventive maintenance, service and repair services. Through more that 24 years of experience we guarantee a first class service. This is particularly valuable as most h/p/cosmos treadmills have a usable life of up to 20 years.

We support our customers with their requirements for design, usability, safety, accuracy, reliability and durability.

Even before the decision to purchase, our trained staff are available to configure the system to help you achieve the best results of your defined goal. Our team consists of experts, some of whom have worked for 10 to 15 years (or even longer) for h/p/cosmos and will competently answer your questions about installation, regulatory requirements, compatibility of the interfaces, etc. and provide other important information.

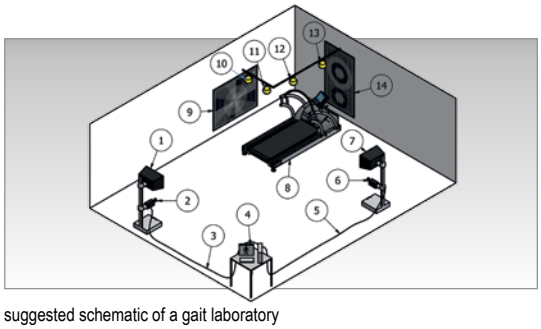
The documentation of the installation and commissioning is clearly structured based on a check-list with pictures. Based on this protocol you can also introduce new employees to the system and therefore ensure constant quality and safety.

h/p/cosmos saturn® 300/125r pit installation

delivery of a h/p/cosmos saturn® 300/100r with a crane

safety tester for technical safety and preventative maintenance

members of the h/p/cosmos technical team



suggested schematic of a gait laboratory

enviromental chamber installation with remote control

run ahead of time!®

Since its foundation in 1988 in Nussdorf-Traunstein (southern Germany) h/p/cosmos® has stood for convincing technology, design and safety in the production of treadmill systems, ladder ergometers, sprint trainers (sprint ergometers) athletic training systems, diagnostic systems and rehabilitation equipment. During this time h/p/cosmos® has become the specialist for treadmill systems for sports, medical and scientific use. The functions, precision and safety of the systems are the deciding factors for athletes, trainers, patients and doctors alike.

satisfaction is not enough – we want our customers to be enthused

All h/p/cosmos® treadmills are standard with one PC interface and the h/p/cosmos para control® software for remote control and monitoring.

h/p/cosmos® sets standards for reliability and durability.

warranty of h/p/cosmos treadmills*

- 20 years on the main drive motor and against frame breakage
- 3 years on all parts

Wireless pulse measurement with cardio-control included in the treadmill, a maintenance free and powerful drive system with a 3 phase AC motor and reverse belt direction for downhill training, the safety arch with fall-stop together with the patented arm supports with integrated scaling and the additional keypad are just a few examples of the pioneering developments from h/p/cosmos®. The benefit for the user is always in the foreground.

A milestone for intelligent solutions was set by h/p/cosmos® in August 1992. With the "h/p/cosmos coscom®" protocol the stage was set and now many other manufacturers currently use this standard. Since then all h/p/cosmos® treadmills and OEM treadmills from h/p/cosmos® communicate with other equipment such as ECGs, ergo-spirometers and PCs. The coscom® v3 protocol and the coscom.dll v3 are available for free download from: www.coscom.org

One of the keys to success has been specialisation. Through concentration on the different possible use of treadmill ergometers, testing and training solutions, h/p/cosmos® has set benchmarks for innovation, technology, design, ergonomy, performance, safety and support.

As treadmill specialists we are ideally positioned to react quickly and flexibly to our customer's needs. Innovative ideas are implemented in the shortest possible time frames developed into intelligent solutions.

Individually manufactured treadmills with extra length or width or very high speeds of up to 80 km/h (49.71 mph / for cycling) are used worldwide today.

sales and service building

production building

We can rely on many years of experience in the supply of special solutions for wheelchair users, skiers or cyclists. In order to manufacture such sophisticated running machines the highest level of technological knowledge and compliance to the strictest safety regulations are a matter of course.

Our QM system, certified to ISO 9001 and EN ISO 13485, monitors the development and release to the market of our systems as well as the clinical evaluation for medical devices and the monitoring of the market. In addition a comprehensive vigilance system and PMS (post market surveillance) for medical devices completes the fulfilment of the legal requirements and the regulatory affairs issues.

The meticulous documentation of all production steps for all h/p/cosmos® treadmills and other systems extends to service reports from the customers premises. All of the product data (entire history) is available to customers and service partners for at least 20 years.

The close cooperation between our specialists from the research & development, regulatory affairs, purchasing, production, marketing, sales and service departments allows us to achieve our goal of precision and perfection.

h/p/cosmos® is certified to ISO 9001 since 1998 followed by the EN ISO 13485 certification that represents the requirements for a comprehensive management system for the design and manufacture of medical devices.

Further information can be found on our website at:
www.h-p-cosmos.com

* For warranty details see last page

how can one find the right treadmill from over 100 different models?

Can normal fitness treadmills be used in sports science, medical establishments or rehabilitation centres? Can a fitness treadmill be used for performance testing and training or for other therapeutic, medical or sports scientific applications?

the purchase of a treadmill is similar to that of a vehicle.

Vehicles are subject to various demands. Therefore there is an enormous variety of types of vehicle (bicycle, motorcycle, small car, limousine, minibus, coach, F1 racing car, truck, train, aircraft, spacecraft, etc.).

To find the right vehicle for the intended application a perfect balance between the requirements and the available types of vehicles is necessary.

There is a wide range of different specifications and different price levels of vehicles. It is impossible for one vehicle to fulfil the requirements of all applications.

it is the same for treadmills!

Therefore h/p/cosmos® offers a choice of over 100 models with different sized running surfaces from 150 x 50 cm to 450 x 300 cm, different specifications with speeds of up to 80 km/h (49.71 mph) and elevation ranges of -35 to +35%, options and accessories and of course different price levels.

We offer treadmill models not only for normal gyms but also for athletic training, biomechanics, medicine and science. Even specialised equipment for environmental chambers for humidity up to 100% or treadmills for animals are included in our range.

how do you choose the right treadmill?

Define precisely the requirements of your application and we will find the right system for it. This is consistent with our philosophy, image and above all, our position in the market (for private home use, professional, institutional, industrial research, medicine and rehabilitation, etc.)

For example, home, health clubs, medical facilities and athletic training centres pursue very different goals and therefore require very different equipment.

For this reason, many professional and institutional facilities after long evaluation processes have chosen from the following systems:

- the h/p/cosmos saturn® 300/100r with safety arch, wheelchair stabiliser and 60 km/h speed for athletic training and physiological sports training not just for runners but also cycling and wheelchair applications.
- the h/p/cosmos pulsar 3p® with safety arch and downhill option, 45 km/h speed - also for athletic training and physiological sport training, speed training, performance diagnostics tests and functional training.
- the h/p/cosmos locomotion® system with the unweighting system h/p/cosmos airwalk® 135se for manual locomotion therapy in neurology and rehabilitation.
- the h/p/cosmos mercury med with arm rests and additional keyboard is a very widely used system in many rehab centres.

The list can be continued indefinitely ....

With this selection procedure you can be sure that your requirements and defined objective are fulfilled for almost all applications and situations.

Options and accessories can have a very critical impact and should not be excluded. It is unlikely that an athlete will train up to his performance limit if safety and fall protection cannot be guaranteed. It's the same for a formula 1 driver or an astronaut who would not start without putting their helmets on. They have to be sure that there is a high level of safety so that they can concentrate on giving a 100% effort without any latent fear.

The correct equipment can only be found when enough time is invested to compare all the available methods and technology.

It may be tempting to reduce the recommended configuration for budgetary reasons. Budgets are naturally never open ended. But this not only a question of the safety or quality.

There is a risk that by reducing the configuration or choosing another equipment model that the goal may not be achieved – based upon the defined results of your application.

The aircraft used by well-known airlines have first class quality, are very safe, comfortable and efficient. But they will never carry a satellite into space and never bring people to other planets. It would be the wrong vehicle for the defined requirements in these applications.

You can find our recommended system configurations for different treadmill applications on out internet site under:
http://www.h-cosmos.com/en/applications/index.htm

Here are nearly all applications and situations presented with which we have gathered worldwide experience over many years. We hope that these descriptions can contribute to helping you reaching the goals that you need and deserve.

To answer the first question:
Medical, therapeutic and scientific institutions should not just choose a special treadmill because of the significant difference in safety between fitness treadmills and medical treadmills (differing electrics, other certification, other CE Mark, isolation, etc.) but because a sports treadmill can never satisfy the demands of medicine, therapy and research based on its design, ergonomics and system compatibility.

Our customers can be sure that h/p/cosmos® doesn't just support them with supply of treadmills and technology. We support them with our knowledge and experience gathered during the past 24 years over the methodology and achievement of results in diverse applications of use.

extract from the 2012 h/p/cosmos product list
sports equipment and medical products

sports CE

running machines	order number	running surface	speed	elevation	power supply **	display	CE
h/p/cosmos stratos lt	cos30000va01	150 x 50 cm	0 ... 22 km/h		230 V AC 1~ 15 A	no	CE
h/p/cosmos stratos	cos30000va02	150 x 50 cm	0 ... 22 km/h		230 V AC 1~ 15 A	yes	CE
h/p/cosmos mercury lt	cos30000va03	150 x 50 cm	0 ... 22 km/h	0 ... 25 %	230 V AC 1~ 15 A	no	CE
h/p/cosmos mercury	cos30000va04	150 x 50 cm	0 ... 22 km/h	0 ... 25 %	230 V AC 1~ 15 A	yes	CE
h/p/cosmos stellar lt	cos30003va13	170 x 65 cm	0 ... 25 km/h		230 V AC 1~ 15 A	no	CE
h/p/cosmos stellar	cos30003va14	170 x 65 cm	0 ... 25 km/h		230 V AC 1~ 15 A	yes	CE
h/p/cosmos quasar lt	cos30003va15	170 x 65 cm	0 ... 25 km/h	0 ... 28 %	230 V AC 1~ 15 A	no	CE
h/p/cosmos quasar	cos30003va16	170 x 65 cm	0 ... 25 km/h	0 ... 28 %	230 V AC 1~ 15 A	yes	CE

ladder ergometer	order number		power supply **	display	CE
h/p/cosmos discovery lt	cos30014va01	ladder ergometer for climbing	230 V AC 1~ 10 A	no	CE
h/p/cosmos discovery	cos30014va02	ladder ergometer for climbing	230 V AC 1~ 10 A	yes	CE

sprint trainer	order number		power supply **	display	CE
h/p/cosmos comet	cos30015va01	sprint trainer with 180 meter rope. 1-phase	230 V AC 1~ 15 A	yes	CE
h/p/cosmos comet 3p	cos30015va02	sprint trainer with 180 meter rope. 3-phase	400 V AC 3~ 16 A	yes	CE

high performance cycle ergometer CYCLUS 2	order number		power supply **	display	CE
CYCLUS 2 Recordtrainer, made by RBM	cos14155-01	System for personal cycle	230 V AC 1~ 15 A	yes	CE
CYCLUS 2 Transport Case	cos14156	Aluminium transport case CYCLUS 2		no	

medical CE 0123

running machines	order number	running surface	speed	elevation	power supply **	display	CE
h/p/cosmos stratos lt med	cos30000va05	150 x 50 cm	0 ... 22 km/h		230 V AC 1~ 15 A	no	CE 0123
h/p/cosmos stratos med	cos30000va06	150 x 50 cm	0 ... 22 km/h		230 V AC 1~ 15 A	yes	CE 0123
h/p/cosmos mercury lt med	cos30000va07	150 x 50 cm	0 ... 22 km/h	0 ... 25 %	230 V AC 1~ 15 A	no	CE 0123
h/p/cosmos mercury med	cos30000va08	150 x 50 cm	0 ... 22 km/h	0 ... 25 %	230 V AC 1~ 15 A	yes	CE 0123
h/p/cosmos stellar lt med	cos30003va17	170 x 65 cm	0 ... 25 km/h		230 V AC 1~ 15 A	no	CE 0123
h/p/cosmos stellar med	cos30003va18	170 x 65 cm	0 ... 25 km/h		230 V AC 1~ 15 A	yes	CE 0123
h/p/cosmos quasar lt med	cos30003va19	170 x 65 cm	0 ... 25 km/h	0 ... 28 %	230 V AC 1~ 15 A	no	CE 0123
h/p/cosmos quasar med	cos30003va20	170 x 65 cm	0 ... 25 km/h	0 ... 28 %	230 V AC 1~ 15 A	yes	CE 0123
h/p/cosmos pulsar lt	cos30004va01	190 x 65 cm	0 ... 40 km/h	-25 ... +25 %	230 V AC 1~ 15 A	no	CE 0123
h/p/cosmos pulsar lt 3p	cos30004va02	190 x 65 cm	0 ... 40 km/h	-25 ... +25 %	400 V AC 3~ 16 A	no	CE 0123
h/p/cosmos pulsar	cos30004va03	190 x 65 cm	0 ... 40 km/h	-25 ... +25 %	230 V AC 1~ 15 A	yes	CE 0123
h/p/cosmos pulsar 3p	cos30004va04	190 x 65 cm	0 ... 40 km/h	-25 ... +25 %	400 V AC 3~ 16 A	yes	CE 0123
Running machines for climatic chambers on request	Available for all sizes as an option at extra charge for the following climatic conditions -35°C ... +55°C and 20 ... 100 % humidity.						

running machines neurological rehabilitation	with adjustable handrails, therapists seats on both sides and foot rest				power supply **	display	CE
h/p/cosmos locomotion 150/50 E med	cos30001va01	150 x 50 cm	0 ... 10 km/h	-15 ... +15 %	230 V AC 1~ 15 A	no	CE 0123
h/p/cosmos locomotion 150/50 DE med	cos30001-01va02	150 x 50 cm	0 ... 10 km/h	-15 ... +15 %	230 V AC 1~ 15 A	touch	CE 0123
running machines biomechanics	**with pressure measurement plates and KISTLER gait analysis software (medical PC and printer not included)**					**display**	**CE**
h/p/cosmos Kistler Gaitway II F	cos30002va01	150 x 50 cm	0 ... 22 km/h		230 V AC 1~ 15 A	yes	CE 0123
h/p/cosmos Kistler Gaitway II S	cos30002va02	150 x 50 cm	0 ... 22 km/h	0 ... +25 %	230 V AC 1~ 15 A	yes	CE 0123

oversize running machines	order number	running surface	speed	elevation	power supply	display	CE
h/p/cosmos venus 200/75	cos30005-01va05	200 x 75 cm	0 ... 40 km/h	-35 ... +35 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos venus 200/75 r	cos30005-01va06	200 x 75 cm	0 ... 40 km/h	-35 ... +35 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos venus 200/100	cos30006-01va05	200 x 100 cm	0 ... 40 km/h	-35 ... +35 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos venus 200/100 r	cos30006-01va06	200 x 100 cm	0 ... 40 km/h	-35 ... +35 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos saturn 250/75	cos30007-01va05	250 x 75 cm	0 ... 40 km/h	-27 ... +27 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos saturn 250/75 r	cos30007-01va06	250 x 75 cm	0 ... 40 km/h	-27 ... +27 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos saturn 250/100	cos30008-01va05	250 x 100 cm	0 ... 40 km/h	-27 ... +27 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos saturn 250/100 r	cos30008-01va06	250 x 100 cm	0 ... 40 km/h	-27 ... +27 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos saturn 250/125 r	cos30009-01va03	250 x 125 cm	0 ... 40 km/h	-27 ... +27 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos saturn 300/75	cos30010-01va05	300 x 75 cm	0 ... 40 km/h	-27 ... +27 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos saturn 300/75 r	cos30010-01va06	300 x 75 cm	0 ... 40 km/h	-27 ... +27 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos saturn 300/100	cos30011-01va05	300 x 100 cm	0 ... 40 km/h	-27 ... +27 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos saturn 300/100 r	cos30011-01va06	300 x 100 cm	0 ... 40 km/h	-27 ... +27 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos saturn 300/125 r	cos30012-01va03	300 x 125 cm	0 ... 40 km/h	-27 ... +27 %	400 V AC 3~ 32 A	touch	CE 0123
h/p/cosmos saturn 450/300 rs	cos30013-01va01	450 x 300 cm	0 ... 40 km/h	- 4 ... +25 %	400 V AC 3~ 64 A	touch	CE 0123
Further oversize running machines and specialised running machines with custom dimensions and specifications available on request.							

parallel bars / walkway	order number		CE
h/p/cosmos parawalk 3 m	cos30018va01	Medical parallel-bar-system for rehabilitation and mobility training; bar length 3 m, 4 m or 5 m. Variable in width and height with support from gas struts. With wooden platform.	CE
h/p/cosmos parawalk 4 m	cos30019va01		CE
h/p/cosmos parawalk 5 m	cos30020va01		CE
robowalk® expander systems	**order number**		
h/p/cosmos robowalk expander F	cos30022va01	for the front area - for all h/p/cosmos treadmills with running surface 150x50 cm	
h/p/cosmos robowalk expander F	cos30022va02	for the front area - for all h/p/cosmos treadmills with running surface 170&190x65 cm	
h/p/cosmos robowalk expander F	cos30022va03	for the front area - for all h/p/cosmos treadmills with optional h/p/cosmos airwalk se 135	
h/p/cosmos robowalk expander B	cos30023va01	for the rear area - for all h/p/cosmos treadmills with running surface 150x50 cm	
h/p/cosmos robowalk expander B	cos30023va02	for the rear area - for all h/p/cosmos treadmills with running surface 170&190x65 cm	
leg cuff thigh, 1 pair	cos101050*	accessories h/p/cosmos robowalk - available sizes S (250-390mm), M (350-510mm), L (490-750mm)	
leg cuff shank, 1 pair	cos101051*	accessories h/p/cosmos robowalk - available size XS (140-270mm)	
mounting-bracket-set h/p/cosmos robowalk expander front	cos101355*	Please quote the serial number and model of h/p/cosmos treadmill on the order!	

robowalk® is also available with following running machines: h/p/cosmos locomotion®, gaitway®, quasar® med and pulsar® 3p. Retrofitable for many other h/p/cosmos models.
****We recommend a dedicated line 3 phase 400 volt connection and 3-phase treadmill for high speed, fast acceleration, special applications and for heavier subjects due to higher performance.**

EN: All prices net, EXW (ex works) h/p/cosmos factory Germany, in EURO. Valid from 01.04.2012 until 31.12.2013 only for Germany. Prices in other countries can vary significantly. Transport, packing, VAT, import taxes, custom duties, L/C and bank fees, installation and instruction are not included.
DE: Alle Preise sind netto, EXW (ex works) ab h/p/cosmos Werk Deutschland, in EURO. Die Preisliste ist gültig vom 01.04.2012 - 31.12.2013 nur in Deutschland. Preise im Ausland können bedingt durch Zusatzkosten signifikant abweichen. Transport, Verpackung, UST, Einfuhrsteuern, Zollgebühren, Installation und Einweisung sind nicht im Preis enthalten.

Other applications for h/p/cosmos® high performance systems:

Warranty: If an h/p/cosmos product does not operate properly, h/p/cosmos will repair or replace it at no charge, for up to one year from shipment date. Furthermore registration and a documented maintenance record (for example through maintenance contract or through authorised technicians) will extend the warranty for treadmill parts only to 3 years and 20 years on treadmill drive motor and main treadmill frame breakage. In the course of replacement or repair, h/p/cosmos may send you written recommendations of how to prevent re-occurrence of a problem. h/p/cosmos reserves the right to withdraw the warranty if the recommendations are not followed. The customer is responsible for transport charges both to and from h/p/cosmos in all cases, local service may be available for which labour may be charged. This warranty is exclusive and in lieu of all other warranties whether written, oral or implied, including the warranty of fitness for any particular purpose. h/p/cosmos' liability is, in all cases, limited to the replacement price of its product. h/p/cosmos shall not be liable for any other damages, whether indirect, consequential or incidental arising from the sale or use of its product. h/p/cosmos may modify this warranty by signing a specific written description of any modifications. A maintenance contract including annual preventive maintenance and regular safety inspection is highly recommended for all h/p/cosmos running machines and devices.

Safety: Please make sure that you read the user manual before operating any item of h/p/cosmos equipment, it contains both operating instruction and service requirements. Clinical staff should instruct their patients, and fitness staff or other professional staff should instruct their members and users in the use, safety and warnings of the equipment before use. Make sure that you have read and understood the safety requirements before using the equipment. For running surfaces with L:200 x W:75cm or bigger, special applications, at higher speeds, for subjects with higher risk of falling or where a fall would lead to unacceptable risks (e.g. invasive probes during exercise or recent hip replacement, etc.), or if there is not enough safety space behind the treadmill, a fall prevention system (e.g. safety arch with harness & chest belt) is obligatory. Keep min. L: 2 m (78.74") x W: 1 m (39.37") safety space behind treadmills!

Liability: Failure to comply with the conditions listed above and below and in the operation and service manual of the respective devices, failure of performing recommended maintenance and safety inspection intervals, unauthorized maintenance or amendments of the design and/or performance and/or specifications and/or labelling of the devices shall absolve h/p/cosmos sports & medical gmbh from any responsibility for the safety, reliability and performance of this equipment. Each operator must read and understand the user manual before using the equipment for the first time. Each user must be instructed in the proper use of the equipment and its accessories. The electrical and mechanical installation of the equipment must comply with the local or national requirements and all installation guides from all respective manuals delivered with the equipment. The equipment must be used in accordance with the instructions for use and operation manual. Operators of h/p/cosmos equipment and accessories are to be trained and certified by h/p/cosmos or their appointed agents before use of the equipment. Please contact h/p/cosmos for further details. All h/p/cosmos running machines are manufactured by h/p/cosmos in Nussdorf-Traunstein/Germany. Accessories and/or options may be imported goods.
Abbreviations: lt = without terminal (no display and no keyboard), r = for bicycle and wheelchair use, rs = for bicycle and wheelchair + ski & spikes use.
UMDNS-Code: 14-141 running machines / customs tariff no. sports running machines: 9506 9110 / customs tariff no. medical running machines: 9018 1910 * Use dedicated power supply with dedicated fuse for each running machine (treadmill). 230 volts 16 A types may also be operated at 220 or 240 volts 15 A. Special voltages available.
We recommend a dedicated line 3 phase 400 volt connection and 3-phase treadmill for high speed, fast acceleration and for heavier subjects due to higher performance.

EU, MDD & Regulatory Affairs information: Devices of the sports category must not be used for medical applications. When linking medical treadmills with other devices (ECG, PC, etc.) then only potential isolated interfaces with 4 kV insulation test voltage are allowed. Accessory equipment connected to the analogue and digital interfaces must be certified according to the respective IEC standards, e.g. IEC 60950-1 for information technology equipment and IEC 60601-1-1 for medical equipment. Furthermore all configurations shall comply with the valid version of the system standard IEC 60601-1-1 and EN 62304. Everybody who connects additional equipment to the signal input port or signal output port or via any other linkage possibility, configures a medical system and is therefore responsible that the system complies with the requirements of the valid version of the system standard IEC 60601-1-1, IEC 60601-1, MDD, directive 93/43/EEC and performs risk analysis and risk management based on ISO 14971. All equipment within a medical system and with metal housing must be linked with potential equalisation cables in star form and then connected to the potential equalisation bar of the medical used room. All standards listed in this brochure refer to validity date (year/month) as it was standard at the time/date when this brochure/document was printed. In case of a transitional period in which 2 standard editions were valid please ask h/p/cosmos or refer to the details as stipulated on the CE declaration of conformity or original test reports of the product for the precisely validity/issue date of the standard.

DISCLAIMER: All system configurations in this brochure are non binding and may not necessarily meet all demands of the user's and/or patient's and/or subject's application and needs. h/p/cosmos is not liable for any mismatch and/or deviation. For a more precisely system configuration recommendation please send precisely demands to h/p/cosmos in writing. All technical specifications, descriptions, equipment options and images of devices, options and accessories are not binding, and do not represent any guarantee of features and may differ from the product and delivery. All pictures and configurations shown in this brochure are not binding and may deviate from standard version of the delivered equipment and/or may be available only at extra charge and/or may have been replaced by modified version and/or supply may have been stopped meanwhile. All h/p/cosmos product names and model names in this brochure are registered trademarks of Franz Harrer and/or h/p/cosmos sports & medical gmbh. All rights reserved. For software and all other intellectual property rights disclaimers as written in the respective manuals apply. All rights reserved for intellectual property, design, technology, software, pictures, videos and other media.

DELIVERY: The delivery (manufacturing) time for h/p/cosmos running machines up to deck size 190/65cm is 2 to 3 weeks in general, except for custom made machines, special colours and for environmental climate chamber design machines. Other models and devices on request. Shipment time 2 to 7 days in Europe and 3 to 8 weeks via sea freight for overseas. Shipment time 2 to 7 days approx. for air freight.

PRICES: All prices net, EXW (ex works) h/p/cosmos factory Germany, in EURO. Valid according to current price list 01.04.2012 - 31.12.2013 only for Germany. Prices in other countries can vary significantly. Transport, packing, VAT, import taxes, custom duties, L/C and bank fees, installation and instruction are not included. Possession of this price list or brochure does not constitute an offer to sell; it is for information only. Property and ownership of goods shall remain with the seller and shall not pass to the buyer until full payment of the price has been received. Full terms of trading available on request. E & OE, errors & omissions exceptet. Subject to alteration without prior notice. General terms and conditions of business are available at: http://www.h-p-cosmos.com/en/company/terms_of_business.htm or in printed form on request.

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Catalogue design: KUSE.DE